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MODERN MAN
AND HIS FORERUNNERS

MODERN MAN AND HIS FORERUNNERS

A SHORT STUDY OF THE HUMAN SPECIES LIVING AND EXTINCT

BY

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F.Z.S.

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1917

TO

THE MEMORY OF MY UNCLE

F. C. J. SPURRELL

IN WHOM

THERE PASSED AWAY

ON

FEBRUARY 25TH, 1915

ONE OF THE LAST OF THAT LITTLE GROUP OF MEN WHOSE LABOURS DURING THE LATER DECADES OF THE NINETEENTH CENTURY ESTABLISHED THE GREAT ANTIQUITY OF MAN

PREFACE

IN offering this book at the present time it is perhaps advisable to say that it has not been inspired by recent events. I had had the project in mind for more than fifteen years; and the accumulated notes began to take their present form in the summer of 1912. When war broke out at the beginning of August 1914 the much-revised manuscript of the first six chapters had already been typed. The seventh chapter was written and the book finished during the next seven weeks on the lines originally laid down. The typescript was then laid aside for fifteen months. Revising it, after this interval, I have not avoided reference to recent events; but I have made no endeavour to rewrite the book as a 'war-book.'

The delay has had one result that might not have been expected. I had chosen a number of illustrations wherewith to justify my references to the perfection of palæolithic art. These I am now able to omit, so numerous are the books and new editions of books dealing with prehistoric man which have appeared during the interval. Information which was not very easily accessible then has since been made available in convenient form.

H. G. F. S.

August 1916.

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The absence of romance in my history will, I fear, detract somewhat from its interest; but if it be judged useful by those inquirers who desire an exact knowledge of the past as an aid to the interpretation of the future, which in the course of human things must resemble if it does not reflect it, I shall be content.

THUCYDIDES.

MODERN MAN AND HIS FORERUNNERS

CHAPTER I

THE PROBLEMS OF ANTHROPOLOGY

There has of recent years been a great accumulation of new knowledge, in the light of which accepted views regarding man require re-examination.

Palæontologists have brought forward fresh facts bearing on the antiquity and varieties of the human species.

The lost culture of prehistoric races has been discovered.

Views regarding the extent of civilization both in time and space have had to be revised.

Evidence of the diversity of modern populations has accumulated.

Recent advances in general biological science are found to have an important bearing on human problems.

Knowledge is daily extending, and an attempt to compile a summary of modern anthropology can only be tentative and of transient interest.

EACH generation has its own view of life, and no doubt every generation has believed its own problems to be peculiarly difficult. Yet the problem that humanity presents to humanity in our own day undeniably has aspects which did not trouble our predecessors. We have to-day more information regarding man than has ever been brought together before, and our view of the history of mankind is now so comprehensive, both as regards time and space, that

generalizations, which formerly appeared sound because locally formed and locally applied, have had to be discarded. The result is for the moment bewilderment.

Within the last few years several things have happened to unsettle the ideas which until recently have been considered established.

Firstly, the careful excavation of human remains has proved, in the light of modern knowledge of geology and biology, that man of the type existing to-day has undergone very little change during a period of some two hundred thousand years. When he has been traced back this distance in time he is found to be living side by side with another species of man, every bit as human, every bit as advanced in development, but structurally as different from modern man as the gorilla from the chimpanzee. This species, now extinct, was regarded until recently as the less specialized ancestral type from which modern man had been evolved. The evolutionist now realizes that both forms are finished products, the terminal twigs of a yet older branch of the same stem which gave rise to the monkeys and apes. They are indeed the survivors of a group of manlike forms of which few, but very significant relics, have been recovered.

This revolution in our views of the antiquity of man and his relationship to the rest of the animal kingdom is almost eclipsed in its interest by the revelation that a culture, whose artistic products were perfect in their kind and imply minds as capable of conceiving and carrying out ideas as our own, existed prior to the last ice age. The races which painted and carved with such accuracy and taste have been extinct for tens of thousands of years, and their culture died with them. Other races which survived them made an independent start later.

After our ideas of the distribution of man, both in time and space, had been thus widely extended, and we had been called upon to revise our conception of the range within which are displayed manifestations of high mental powers, we were next compelled, by accumulated results of historical research, to form a much more modest estimate of the place of civilization in the scheme of human progress than we had done hitherto. Though man has inhabited the earth for hundreds of thousands of years, it is barely ten thousand years since civilization arose. By civilization we mean, not merely any display of human intelligence from the chipping of a flint to the painting of a rock; but the organization of life so that the resources of a given tract of land could be developed sufficiently to maintain a dense population. Where remains of cities, roads, canals, mines, irrigation works, or drainage on a large scale, point to a dense population with a complex regulation of its activities, we say we have evidence of civilization. Civilization, apart from the refinement of existence which it fosters, implies an exploitation of the land, a mode of life essentially different from that of uncivilized men and animals who live simply in numbers restricted by the limitations of what the land of itself produces.

If the geologist and the anthropologist have been compelling us to reconsider our views, the historian has been advancing no less important claims within the confines of his own domain. In the first place, he has extended his range in time. Beneath our own civilization whose continuous growth we once thought comprised the whole extent of organized activity, he has found other civilizations going back ultimately to a far more remote origin in neolithic savagery. In the second place, he has extended his range in space.

He has unravelled for us the story of great civilizations in Asia and America, the work of races widely different from our own, but capable of achievements as magnificent and as durable as any that have been seen in Europe. In the third place, he has asked us to modify our recent belief that civilization is a progressive phenomenon, by giving us unmistakable proof that it has in the past been intermittent; yet that at corresponding phases in its successive cycles it was comparatively uniform in the perfection with which it devised means to meet needs.

All these discoveries of man's immediate and more distant past would by themselves have thrown a severe strain upon our capacity for mental readjustment; but they are no more than a part of the new material out of which man has been trying to construct a coherent theory of himself during the past few years. The systematic study of living races and communities has brought to light another mass of facts with which man's idea of man must be harmonized. The belief died hard that the modern European was the archetype of man to which all people all over the world should and easily could be induced to conform. However, closer intercourse with the great civilized nations of the East; the extravagances of European emigrants in new continents where they have had to adapt themselves to a strange environment; the studies pursued by explorers; and, above all, the experiences of those officials sent out by Europe to govern backward races, have, when correlated, led to a knowledge of the natural history of man which killed the belief in his uniformity beyond all possibility of resuscitation. In spite of a common origin and an underlying anatomical uniformity the branches of the human race to-day are separated by peculiarities developed, in far distant parts

of the world, to adapt them to peculiar conditions. These deep-seated differences appear not so much in external physique as in various ways of reacting to climate, fatigue, and specific diseases, in achievements of culture unlike in kind and extent, and in institutions and points of view, unadaptable, and incomprehensible to strangers.

Even those not directly engaged in studying the human animal have helped to shake old beliefs, and have amassed fresh facts for which a place must be found in the new scheme if it is to be complete and durable. For instance, the slowly accumulating knowledge of the principles which underlie heredity has helped to explain much that was obscure in the vicissitudes of the human species. We now regard the individual as made up by a grouping of positive and negative characters derived from amongst those of a very mixed ancestry, and believe that he cannot during life acquire new characters that he is able to transmit to his offspring. This has taught us that those marked mental and physiological differences which are apparent in populations of the great nations to-day are to be explained by the inextricable mixture of races out of which they have arisen. Education and environment will affect the development of the individual who comes directly under their influence, but will only modify the race in so far as they aid or hinder particular types in contributing to the next generation.

The attempt to compile an account of man out of this bewildering bulk of new material, constitutes a task formidable in its difficulty and yet of absorbing interest. It necessitates generalizing from an appalling mass of detail in every branch of knowledge, and it requires the most perilous of decisions: the discrimina-

tion between what should be considered causes, and what are only effects of great changes at work in the individual or the race, and the discrimination, often no less difficult, between primitive survivals and the morbid products of degeneration. To plot the result in bold outlines is to face the certainty of failure in one of two directions. The summary will either be insufficient or it will be overloaded. Either the very breadth of the generalizations and neglect of exceptions must conduce to the inaccuracy and inadequacy of a sketch-map, or if it be a fuller and more detailed chart that is attempted, the result will resemble in its complicated intricacy a model of a maze. In the following pages I have attempted only the sketch-map, knowing full well the limitations of its value and the defects that must mar such an undertaking, however successfully it should be accomplished. Were the generalizations condensed here justified by adequate citation of the authorities on which they are based, the result would fill not a small volume but a whole library, consequently a presentation of conclusions alone is offered.

I would make, also, one other disclaimer. Whatever faults may be found with this compilation, I beg that it may be acquitted of pretending to finality any more than to completeness. Knowledge is ever being extended, and views are daily shifting. It may well be urged that the time has not yet come for a comprehensive statement of man's nature, history, and destiny. Myself I doubt if such a time ever will come. But this little book does not profess to be any such statement. At best it aims only at being an interim report on the investigation now going on of those problems which must always be of absorbing interest to mankind.

CHAPTER II

THE ZOOLOGICAL POSITION OF MAN

To maintain his existence, man, like other animals, must solve the problems presented by his environment.

In structure man departs little from the original model of the mammals.

Man's position in his own group among the primates is matched by corresponding forms in other groups.

A human group of terrestrial forms corresponds to the arboreal apes.

The modern and Neanderthal species of man correspond to light and heavy species of apes.

Lack of specialization is associated in man with general competence and versatility.

Inadequate powers in man were not made good by physical adaptation, but by versatility.

Men contended with nature by utilizing—

(*a*) their collective powers,

(*b*) the powers of other animals,

(*c*) mechanical contrivances.

An immense period of time must have passed while the ancient and modern races were being evolved.

THE rise of the modern type of man to the position of predominance which he holds in the world of to-day is not easy to explain, either by his zoological position, his physical powers, or his mental characteristics. His place in zoological order has its parallel in other groups of animals, and does not appear to give him any outstanding advantage. His physical peculiarities do not surpass those of other

species, and indeed do not compare altogether favourably with those of human races which have become extinct. And much the same might be said of him mentally. Evidences of his intelligence and habits differ more in degree than in kind from those of his nearest living relatives, and show individually but slight advance on those of human races which have disappeared.

Man, like every other species, survives subject to the conditions summarized as the 'struggle for existence.' The struggle for existence is one of great complexity. First, there is the direct conflict between the animal and its food. Every animal is engaged in trying to obtain food from plants or animals which in turn try to preserve their existence by eluding its observation or pursuit. There are, of course, notable exceptions to this generalization, such as conspicuous fruits which depend on birds to scatter their seed. In any case this is a limited conflict which must not end in victory and extermination, but in the establishment of equilibrium. Next, there is the conflict with competitors, of the same species and of others, who are also dependent upon the same food supply. Each hungry mouth is trying to satisfy itself before other hungry mouths forestall it from a limited supply. Finally, each animal is trying to elude the observation or pursuit of enemies microscopic or macroscopic whose prey it is liable to become. No less severe is the conflict of the animal with its physical surroundings, or, in other words, the demands made upon its adaptability to climatic vicissitudes. The tendency to over-production keeps the struggle for existence for ever active. Only the most efficient individuals of the most efficient species produced by evolution, can either get enough to eat or escape being

eaten long enough to maintain the continuity of their kind in equilibrium with their environment. This is spoken of as 'natural selection,' which determines the 'survival of the fittest.' But what constitutes fitness to survive is determined by the nature of the struggle for existence, which presents different problems for solution to every species of animal either in its individuals or its communities.

The struggle varies, moreover, both in nature and in intensity from time to time and from age to age as conditions change. At one time it may mean only that a certain proportion of the young of a given species are destroyed before they reach maturity. The number of scarred and partially maimed individuals one finds when collecting specimens of animals, may show that a species has a considerable margin of hold upon life within which its recuperative powers can act. Yet there is for it, under existing conditions, a level of competence below which individuals cannot fall on pain of elimination. Changing conditions may raise the pressure of life until without modification the species can no longer maintain its existence, and then only the varying individuals best fitted to the altering circumstances can live long and a new species is produced. The change may be too sudden, or the adaptability of the species too slight, to allow this, and a whole type which can no longer maintain an equilibrium with its environment disappears.

The equilibrium between a species and its environment, environment including other species, may be upset in its favour and it outgrows its food-supply and invades other feeding grounds.

It is, of course, only a figure of speech to speak of animals invading new territories. Animals do not

usually advance like flights of locusts or Tartar armies, but expand in the direction of a resistance so low as to be almost a negative pressure. It may sometimes happen that they migrate to places where the conditions are less suitable to them than those they have been used to; but this is because their former habitat has undergone changes which, whether due to physical causes or their own multiplication, make life there more difficult than before.

It will be seen that the 'struggle for existence,' which by sometimes only permitting the 'survival of the fittest' modifies or eliminates species by 'natural selection,' comprises all the methods of reaction by which a species maintains, or fails to maintain, itself in equilibrium with its whole complex environment. The term is a useful one so long as its elasticity is understood.

Man at first sight appears singularly ill-equipped for the struggle for existence. In almost every environment evolution has produced specially resistant types of nuts and, working along parallel lines, specially competent teeth for cracking them. Intervening in the equilibrium between the specially hard nutshells and the specially strong teeth, man seems likely to fare badly, since he had no special adaptations which fit and restrict him to any particular environment, and he is in most cases a far slower breeder than his competitors. I will endeavour to present the difficulty by means of a crude illustration.

Let us suppose that man enters into the life of a mountain valley where turnips (if I may be permitted for convenience to use them), sheep and wolves have reached an equilibrium. The prospect of man surviving seems a very poor one. He has not the specialized ability

of the sheep to find turnips at the very moment when they are ready to eat, and is still further handicapped in competition with the sheep in that he is less able to digest turnips. The wolves, finding man far less wary and agile than the sheep, change their diet from lambs to children. The sheep, availing themselves of this respite, multiply so fast that they cause a turnip famine. Man, endeavouring to change his diet to mutton, finds the sheep already trained in self-preservation by the constant pursuit of specialized carnivora. Man is further handicapped by being a slower breeder than either sheep or wolf. One would expect man to disappear from an environment to which he is not like his competitors specially adapted, in fact, to be vanquished in the struggle for existence. On the contrary, he triumphs not by special adaptation, but by mental and motor versatility. He exterminates, or at least establishes, a supremacy over the wolves by traps and weapons. He collects turnips and cultivates them in enclosures from which the sheep are fenced out. He limits the number of the sheep, and cultivates them, too, for food. And he overcomes his digestive inferiority by cooking his meals. He has then solved his problems in the struggle for existence until his own over-multiplication shall raise them again in another form.

The problem of how man has managed not merely to hold his own in the struggle for existence, but to win the highest prizes, may well excite curiosity and invite investigation if only by the difficulties with which it is surrounded.

The position of man in the zoological scale is a lowly one, if we consider only his structure, for his bodily form shows little advance on a very early model. The primitive animals which became the ancestors of

all modern mammals were creatures with teeth of a simple pattern, varying in number about a typical set of forty-four, with four limbs jointed to the trunk in such a way as to permit of very free movement, and with a tail. The limbs were constructed of an upper segment with a single bone, a lower segment with two separate bones, and ended each in five digits, each bearing a claw or nail. Their mode of progression was plantigrade. Man has discarded twelve of the forty-four teeth of a typical mammalian set, and has reduced the tail to a vestige in the skeleton; but otherwise he retains his ancestral form with remarkably few modifications in its structure.

The extremely primitive structure of man becomes more apparent if we compare him with an animal which has become highly specialized in order to attain peculiar powers, for instance, the horse. The horse has not, like man and many other animals, reduced the number of his teeth, but he has developed their structural possibilities until they have attained a perfection which the corresponding organs in man cannot approach. He has so modified the attachment of his limbs to the trunk that they will move only in one plane, and he has so adapted their structure that movements in this plane give him upon hard ground the most rapid locomotion with the smallest effort. This has been attained by fusing the two bones in the lower segment of the limb to form one, by reducing the five digits on each limb to one, and by converting the nail on that digit into a solid hoof. These changes involve walking upon the tip of the digits instead of the soles of the feet, as in the primitive mammal type. That such extensive modifications should be necessary to attain success in the horse sphere of life cannot but excite wonder that man should

have attained a like eminence with comparatively little alteration in the original mammalian form.

But if specialization for a particular place in life has carried the horse much further away from the original model of the mammals than man, and though other groups of mammals have diverged no less in other directions, man's position is in no way unique. Man is one of a large group of animals which have in common many primitive characters, and few really great modifications of the structure of the common ancestors of all mammals. Even within this group the position of man is not one of isolation. Subdivisions of the groups have progressed along parallel lines, and in the sub-groups, other than that to which man belongs, his place is occupied by corresponding forms. In fact the distinctive origin of man must be placed very far back, in the time of animals which have since become extinct, and it antedates the specific characteristics of many mammals surviving to-day.

When traced back, the primates, like most other groups, approach the insectivora, which appear to have changed least of all modern types from the original model; but traced forward from their beginnings they diverge into two distinct lines, the lemur group and the monkey group. These had a common origin and still retain many resemblances, though the lemurs are seen to have kept nearer to the primitive form than the monkeys, and show this very clearly in their brains and teeth.

Both the lemur group and the monkey group divide each into two groups. Though all the primates were originally arboreal, they early developed two widely different types of climbers. One type we may call the running and leaping climbers, the other the creeping

and swinging climbers. Examples of the former, as one would expect, of animals which run and leap actively, have long tails; the latter, with their more deliberate ways and abandonment of leaping, have reduced their tails till in some no external tail is present at all. The lemur group consists of a division of running and leaping animals with long tails, comprising the lemurs proper and galagos of to-day; and a division of creeping climbers with tails reduced and in some cases absent, including the pottos, loris, indris and similar forms. The monkey group in the same way is divided into the active leaping forms with tails, and the slow swinging climbers, including the anthropoid apes and man. In both groups the slower tailless forms show a tendency to adopt the erect posture and walk on the hind legs. So far as we know, in the lemur group the erect position and gait are carried furthest in the indris, while in the ape group they are fully developed in man.

Confining our attention henceforward to the monkey group we find that it divided early into two lines. One line is now represented by the American monkeys, the other by the old-world monkeys and apes, together with man who is now cosmopolitan.

The American monkeys are the less altered group of the two; they retain a simple form of brain, and show less reduction in number of teeth. Among them we find running and leaping climbers, most notably the squirrel monkeys, and swinging climbers, the extreme example of which is the spider-monkey *Ateles*. But among the American monkeys there is not such a clear division as between the monkeys and apes of the old world, or the two types among the lemur groups; for instead of dispensing with the tail, the slower American monkeys

GALAGO.

INDRIS.

LEMUR TYPES.

SPIDER MONKEY.

SQUIRREL MONKEY.

AMERICAN MONKEYS.

[*To face p.* 14.

developed it as an additional organ for grasping and swinging. Indeed, the American monkeys are more like one uniform group, while the old-world monkeys and apes form two. It may even be more correct to consider that the monkeys split up simultaneously into three divisions, the American group, the old-world monkeys, and the anthropoids; for the gibbons, which are the oldest and least changed branch of the anthropoid stock, whilst in the main conforming to the old-world pattern, have characters which they share with the American monkeys, but in which they differ from the old-world monkeys. For instance, the anthropoid and human group have reduced the original set of forty-four teeth to thirty-two. So have the old-world monkeys. The American monkeys, on the other hand, have reduced the original forty-four by only eight instead of twelve, and have thirty-six teeth. Turning, however, from the number of the teeth in which the apes and the old-world monkeys agree, and the new-world monkeys are different, to the structure of the teeth, we find that the ape and man group are similar to the American monkeys and differ therein from the old-world monkeys. This seems to narrow and isolate the group to which man belongs for a very long way back, and clears the ground for investigating man's position and antiquity within that group. It may be useful here to recapitulate our brief survey of the primates by means of a chart in which it will be seen again how the primates have advanced along two lines, each of which had produced a tailless group, some members of which walk erect on their hind feet.

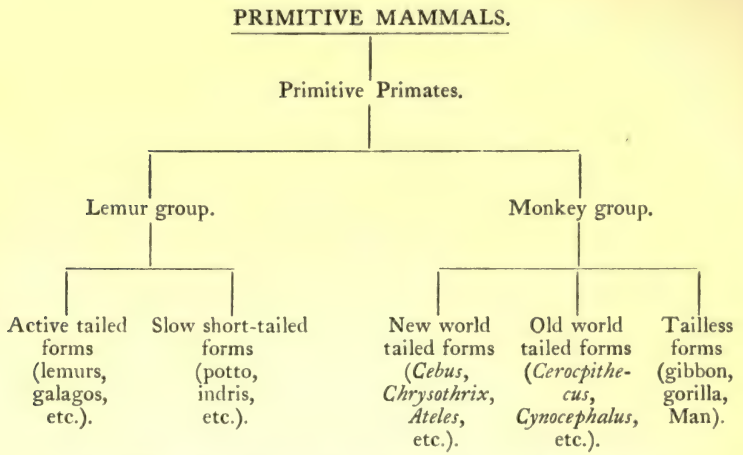

PRIMITIVE MAMMALS.
Primitive Primates.
Lemur group.
Monkey group.
Active tailed forms (lemurs, galagos, etc.).
Slow short-tailed forms (potto, indris, etc.).
New world tailed forms (*Cebus*, *Chrysothrix*, *Ateles*, etc.).
Old world tailed forms (*Cerocpithecus*, *Cynocephalus*, etc.).
Tailless forms (gibbon, gorilla, Man).

CHART SHOWING THE POSITION OF MAN AMONGST THE PRIMATES, AND THE RELATIVE POSITIONS OF THE TAILLESS FORMS IN THE LEMUR AND MONKEY GROUPS.

Before leaving the general review of the primates to consider the anthropoid group in greater detail, another interesting case of parallelism is worth noticing. From amongst the tailed forms, the running and leaping climbers, one branch, namely, the baboons, has diverged from arboreal life in forests towards terrestrial life in mountains, and established itself in rocky regions, from which it is easy to raid the open country of the plains. To do this successfully the baboons have to pool their individual resources, and hence we find them gregarious, with the elements of social organization. This is very similar to a divergence which has taken place amongst the tailless forms, the creeping and swinging climbers, only in this case the change has gone further. Amongst these we have, on the one hand, the modern gibbons, which have become almost perfect in their adaptation to arboreal life, and, on the other, the human group, of which the surviving type

SIAMANG.

HOOLOCK.

TYPES OF GIBBONS.

GORILLA.

CHIMPANZEE.

TYPES OF GREAT APES.

[*To face p.* 16.

of man is an essentially terrestrial animal. As in the case of the baboons, man has only established him as a terrestrial animal by gregarious life on a well-developed system of mutual aid and defence. While it will be necessary, before it is possible to deal with the peculiarities of man, to devote further attention to members of the group with which he has so much in common anatomically, I shall have later to return to the baboons, in whom we find a parallel to his habits socially.

Although we have now narrowed down the group of animals to which man belongs to comparatively few forms, all closely related to him, I do not think it is necessary here to go very deeply into their structure. The points in which man differs from the apes, and those in which he resembles them, anatomically, physiologically, and pathologically, are well known, and I see no advantage to be gained by my recapitulating readily accessible accounts upon which I could not hope to improve. The point upon which I do wish to dwell is that the position of man among these forms is not a peculiar one, but that the position of modern man in the human groups is matched by corresponding forms in the differing anthropoid groups.

The original anthropoid stock, of which the modern gibbons are the least changed descendants, seems to have diverged early into the three lines which have given us the modern gibbons, the modern great apes, and modern man. While the gibbons specialized for an arboreal existence, the second group seems to have taken to a partly terrestrial life, spending much time upon the ground though inhabiting forests. Of this group the gorilla is both by structure and habit more a terrestrial animal than the chimpanzee, while the

orang is almost as purely an arboreal form as the gibbons, though in a different way.

The third group at a very remote antiquity carried the changes which we see in adaptations of the gorilla to terrestrial life, to functional completion, and produced a purely terrestrial form which gave rise to modern man. This is the group of which we know least, for there is only one species surviving to-day, and the remains of extinct forms as yet unearthed are scanty and incomplete. Yet, though our knowledge of the human group is in its infancy, we know enough to make some exceedingly interesting comparisons with the other two.

It is remarkable that in each of the three groups there is an early divergence into two types, a heavy and a light, and a development along two lines, one depending on strength, the other on agility. In the present day we have a heavy gibbon, the siamang, and a light form of gibbon, of which there are many species. The African apes show a heavy form, the gorilla, and a lighter, the chimpanzee, of which there are several races. In the human group we have the heavy type, the Neanderthal type of man, now extinct, and a light type, modern man, divisible into many races.

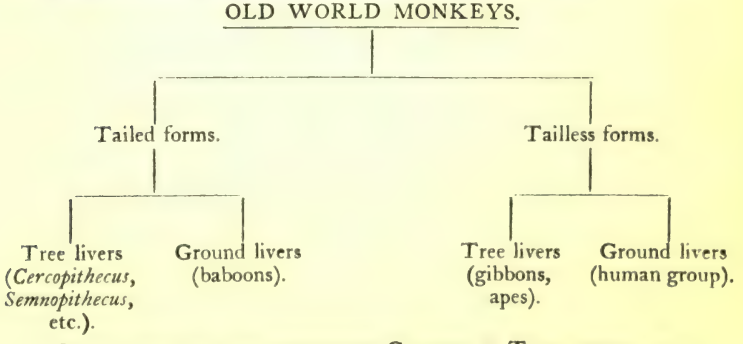


CHART SHOWING CORRESPONDING GROUPS OF TREE-LIVING AND GROUND-LIVING MONKEYS AND APES.

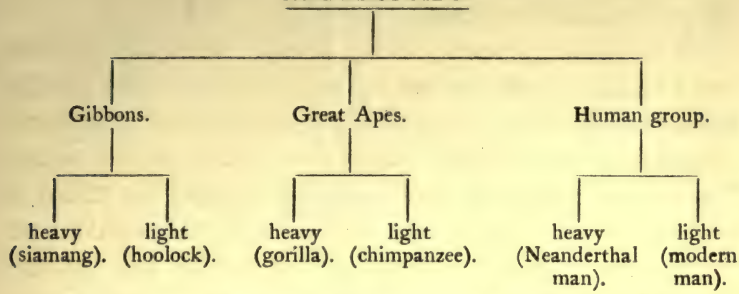


CHART SHOWING POSITION OF CORRESPONDING HEAVY AND LIGHT GROUPS OF APES.

At one time it was believed that modern man was a modified descendant of the Neanderthal man, produced by a process of debrutalization; but this view can no longer be sustained. Early in the pleistocene period, and presumably in the late pliocene, the modern type of man had been differentiated, and lived contemporaneously with the Neanderthal type. Many people have attempted to draw realistic portraits of both these types as they are conceived to have looked when alive. But though the various results are very interesting, I think it better not to reproduce any of them here. We cannot be sure what extinct men looked like or how their barbers and their tattooers turned them out. If an anthropologist in another planet were shown the skulls of a present-day Norwegian and Tartar, it is possible that he might be able to produce recognizable models of their features. But unless he were aware of correlation, undiscovered as yet by terrestrial anatomists, I doubt if he could tell from the bones alone that one had been a blond with a bushy beard and wavy hair, while the other had had at most a few sparse bristles on his face and straight coarse black hair on his scalp. The more

an anthropologist knows the more cautious he becomes in the reconstruction even of missing bones. And the more successful he proves in this the more chary does he seem of supplying from his inner consciousness the photographs which we have not got of say Neanderthal and Galley Hill types of man. In a verbal description we are not committed to details about which we cannot be sure.

The modern type of man requires no description: living specimens abound. And so little has the type changed in the last two hundred thousand years or so that an individual whose bones have been unearthed from pleistocene deposits might, were he alive to-day, be taken to shops in Mile End Road and fitted out with ready-made clothes, boots, gloves, and a hat, all from stock sizes. In these he could probably walk up Leadenhall Street to the Bank, and on down Fleet Street and the Strand to Charing Cross, without attracting more attention from the crowd, which now takes aliens for granted, than would a modern negro or Chinaman.

The result would be quite different if one tried the same experiment with one of his contemporaries of the Neanderthal race. An average man of the Neanderthal race would be about the same height as an average modern man, but he probably would not stand as high, for he would not be able to hold himself as erect. His normal attitude would be a bent-kneed slouch, not from preference or laziness, but from the shape of his bones. His legs were not built to be quite straight, and his head was so fitted to his neck that it would have to be thrust forward. Instead of his head resting on the top of his neck like a modern man's, his neck was inserted into his head—below, it is true, but far back; more after the manner in which a dog's neck is continuous

with its head behind. Then in general build he was far more bulky and massive than the modern type. He had much bigger teeth than modern man, and they were implanted in his jaws much more firmly by roots that were modified from the modern type to give increased strength. He had a large brain, but his forehead sloped back, and he had great bony ridges over his eyes. His skull was thick, and was strengthened with bony crests and ridges to give attachment for the muscles which worked his large projecting jaws. It would not be easy to clothe him with ready-made garments of stock shapes and sizes, and he would probably create a sensation if he appeared suddenly in a London street. Yet he was at a stage of development equally advanced on parallel lines with modern man, and before he disappeared from the earth he could talk, was right-handed, and had made some progress with the arts and crafts. But, so far from forming a link connecting modern man with the anthropoid stock, he had, like the gorilla, specialized for ponderous strength, on lines which took him further from the modern type of man than the more primitive members of the human group, whose remains have lately been found in older geological formation.

There is one more physical consideration that must not be omitted. In the great apes, and in both species of man, sex can be distinguished in the whole skeleton with ease, in parts of the skeleton, and even in many isolated bones with less ease, but with fair certainty by an expert. In the gibbons the secondary sexual differences are very much less marked, and it is often impossible for even an expert to be sure whether the bones came from a male or a female.

Now the gibbons have changed less than any of the

anthropoid group from the type of its ancestral stock. It is therefore fair to assume that, in proportion as the types advanced in specialization, the structure and habits of the sexes diverged. The rationale need not be described here. It depends mainly on mechanical necessities arising out of the adaptation of a quadrupedal animal to bipedal life. These placed the female under certain structural disadvantages, and the needs of the species required a compensating strengthening of the male. A natural division of the functional contributions of each to the maintenance of the race in the provision of food for the day and the safety of the next generation, proceeded *pari passu* with the anatomical modifications.

Here again, however, we find no special privileges or immunities for man. His development has its exact parallel in other groups. In the more brutal type, the gorilla and the Neanderthal man, we find a greater difference between the sexes, from a higher specialization for strength in the male, than in the lighter types, the modern man and the chimpanzee. Since the specialization has been mainly to fit the male for the hard work of providing for his mate and offspring, for defending them and beating off his rivals, while the female has confined herself mainly to adaptations needed for the strictly reproductive side of life, the females of all species tend to resemble one another more than their corresponding males, and to change less during growth from their infantile forms, which all resemble one another more closely still. These differences due to sex and age are more marked in the advanced white races than in the retrograde negro races; yet in the whole modern race they are incomparably greater than in the gibbons, and considerably

less than in the Neanderthal race. Even within the limits of the modern type of man, sexual differences are more noticeable in the bones of individuals of to-day than in those of contemporaries of the Neanderthal race. A very slight accentuating of sexual differences is one of the few changes which a geological epoch seems to have made in modern man.

If we now turn our attention from the general frame to the brain, from the structure of the body to the characteristics of the mind, and from affinities in blood to similarities in habits, we shall find that among the primates modern man is every whit as closely paralleled in these respects as his structural parallels would have led us to expect.

The primates are descended from a stock that was essentially arboreal. They specialized as climbers by perfecting the hand and foot as grasping organs with opposable thumb and great toe, not by enlarging the nails into claws which are incompatible with sensitive finger tips.[1] Such a hand was not only a perfect climbing organ, but also admirably adapted to examining objects and picking things up. In necessary relation with this power of manipulating and examining objects we find a convergence of the eyes from the sides of the head to the front, so that both can be focused on an object at the same time. This binocular vision brings acuteness of sight to its maximum for near objects, whilst limiting its range.

It was, however, not only by developing the forepaw into a grasping hand that the tree-climbing habits of the primates prepared the way for their subsequent

[1] In the marmosets all the digits have claws except the great toe. The marmosets, however, are separated from the rest of the primates by other characteristics: chiefly noticeable are the teeth and brain.

mental development. The branches of the trees proved a gymnasium in its more extended sense. All animals specialized for active arboreal life show a common tendency in the modification of the reproductive system. The primitive mammalian stock was very fecund; but a large litter or a long pregnancy is incompatible with arboreal activity. The tendency with arboreal types is to reduce the number of offspring produced at one time, to produce them very immature, and to carry and nurse them in the arms. The single baby, the pectoral position of the mammæ, the long infancy and period of dependence with its foreshadowing of intellectual and social consequences, had all been evolved by the primates in their conquest of the trees long before the human group descended from the branches to undertake the conquest of the ground. These are the chief positive factors influencing the mental development of the primates. The others are mainly negative.

It has been noted above that the primates are as a group remarkable for the small amount of specialization they show. The effect of this on the nervous system must be obvious at once. On the motor side they need an exceptionally complete system of control. In a highly specialized animal like the horse there is a comparatively small repertoire of very definite movements. The limbs each end in a single digit, and they move only in one plane and in regular sequences. Their purpose is locomotive. The food is very uniform, and is taken and treated in a uniform manner. Compare this with the much larger number of members which a monkey can move, the much greater independence and wider range of their movements, and the far less uniform requirements which they have to subserve. On the sensory side again we find the same completeness of

functional competence with the same absence of specialization and simplification. In more specialized animals there is usually one sense highly developed at the expense of the others. One animal finds and tests its food almost entirely by the sense of smell, another almost entirely by sight. One animal trusts to escaping its enemies almost entirely by the acuteness of its hearing, another by means of its eyes, another may rely on its nose to save it from its enemies as well as from starvation. Among the primates there is no such reliance upon a single highly developed sense. A monkey to preserve its precarious life must attend to all its perceptions, whether of sight, hearing, smell, touch, etc., as it cannot afford to disregard any of them. With such a number and variety of sensory impressions coming in, and such a number and variety of motor impulses going out, it naturally follows that there must be a highly effective co-ordinating machinery in the brain, and the manifestations of this we call intelligence. All things considered it is not remarkable that the primates show an extraordinary versatility in their behaviour; but it does seem wonderful that they should have maintained their hold on life when, in every one of their many spheres of activity, they have had to face the competition of animals more highly specialized to fit them for that place alone. Having made good their hold upon life, it is easy to see how their hope of advance lay in the development of this motor and sensory versatility.

The primates having made good their attempt to hold their own in the world by general competence rather than specialization, it is astonishing how successful they have been. One cannot watch a gibbon or a spider-monkey in action without realizing that the group has

produced two of the most perfect climbing machines conceivable. One cannot observe a monkey sitting on a thin branch in a high wind, holding on with one foot, scratching itself with the other, tearing the husk of one nut with its hands and dealing with half a dozen other nuts with its teeth, tongue, and cheek pouches, whilst its general suspicious vigilance is not in the least relaxed, without feeling compelled to admire a nervous organization which can control so many different yet precise movements simultaneously without any diminution of sensory receptivity. Yet one is driven to the conclusion that neither by perfection of its mechanism nor improvement of its reflexes could the group have produced a dominant type without modifications which would have destroyed its identity. The line of advance for the primates must be along the development of the intelligence and capacity for education.

The foundation of the mental powers of the primates was laid when the structural peculiarities of the hand were determined. The hand, like the foot, was originally a grasping organ, designed to subserve the locomotion of an arboreal animal. In the lemurs to this day it remains chiefly an organ of locomotion. I noticed that the tiny Demidorf's galagos, of which I kept several in West Africa, picked up their food with their mouths, not with their hands. If a piece of fruit was too large for them to carry away they ate it on the ground, biting pieces out of it without handling it. It was only when food was held outside the bars of their cage, when they could not reach it with their mouths, or when a segment of some fruit was so balanced on the rind that it slipped round when they tried to bite it, that they grasped their food with their hands. Yet they used their hands with great dexterity in catching moths,

though they usually held the moth's body in their mouths while they pulled off the wings preparatory to eating it. While the lemurs often, after picking up food in their mouths, hold it in their hands while they eat, monkeys, as everyone must have observed, almost always pick objects up in their hands and examine them before submitting them to the conclusive ordeal of taste.

I found it impossible to form a satisfactory opinion on the relative intelligence of the galagos, which I kept in West Africa, and the marmosets, which I had in South America. Such a comparison would have been very interesting, for the galago has an excellent hand, while the marmoset lacks an opposable thumb and its fingers end in claws. The galagos, however, were difficult to observe, being nocturnal and very shy; and even those which I had longest never would admit me to the same intimacy as did the marmosets. Compared with the marmosets, monkeys with their more effective hands show a marked advance in intelligence. This is disastrously evident when one's pets escape. Marmosets show a delight in eluding recapture, they devote considerable ingenuity to pilfering food and gratifying their depraved taste for the dregs in wine-glasses, but their interests seem limited. The diabolical curiosity of a monkey, say a *Cercopithecus*, spares nothing. Having exhausted his interest in eatables, he will investigate everything, snatching small objects and carrying them to a perch where he can study them without interference. If he has the free run of a room for a time he may become consumed with a passion for solving by experiment the problem of what is breakable and what is not.

As with the development of creeping and swinging

styles of climbing the tail became reduced in size, the muscles which had been required to work it were diverted to form a floor for the pelvis, and an erect position and gait were acquired. The hands then became more and more released from the duties of locomotion. This freedom of the hands is undoubtedly associated with an advance in the habit of examining and experimenting with objects. Those who have kept a chimpanzee must have observed how continually its hands are occupied with some toy, a bit of stick, a stone, a piece of rag, a tin plate, a watch and chain, according to the luck of the moment. Together with the habit of manipulation grow the power of fixing the attention, and the knowledge of the properties of matter.

I never realized how great this knowledge was until I acquired a chimpanzee, and tried to limit the range of her activity by tying her to a post of my veranda. She watched me tie the knots mildly and without remonstrance, and then deftly and quickly untied them. In spite of some experience of ropes picked up whilst I was attached to a ship, I found that I could not secure her to the veranda post by any knot which she could not quite easily unravel. I next tried a strap, driving two nails through one of the eyeholes, bending them apart, and hammering them flat upon the wood. It did not take her many days to work the nails loose, after which it was a simple matter to twist them round till they were parallel, and slip the strap off them. It is useless to give the smaller West African monkeys a long rope. Even a short rope attached to a ring running on a smooth horizontal pole will not defeat their perverse ingenuity in getting entangled. It was not even necessary to provide a smooth pole and ring for the chimpanzee. If her wire loop caught she

understood what was wrong directly, and would go back and ease it over the obstruction with her hand.

From solving the mechanical problem involved in overcoming an obstacle to freedom, it is a short step to applying a knowledge of the properties of objects. A cercopithecus monkey would recognize the dish in which its food was given it, and show excitement when it was produced; but the chimpanzee when she was hungry would bang her tin plate on the ground and hold it out like a beggar asking alms to anyone who answered her summons. This is coming much nearer to constructive ingenuity; but one day my chimpanzee showed unmistakably that she did not stop here.

So little is known of the habits of anthropoid apes in the wild state, and it is so difficult to tell how far their behaviour in captivity is influenced by association with man, if not by actual training, that it is very unwise to say what are the natural limits of their constructive ingenuity. I think I was therefore fortunate in being able to observe the following incident. After noticing for several days that my chimpanzee was at frequent intervals trying to relieve some irritation in one of her ears by inserting a finger, I found her subsequently inserting a small twig, apparently to get at the depths which she had failed to reach with her finger. Now my chimpanzee was very young, and had never left West Africa or received any 'education.' Moreover, this was not a 'trick' which anyone was likely to have taught her. Although she regarded me as a friend and showed me a good deal of confidence, my offer of assistance on this occasion was so painfully misunderstood that, not thinking there was really much the matter, I abandoned my attempt to examine the

ear which was troubling her. Yet she undoubtedly selected and used a tool to accomplish something she had failed to do with her unaided hand. If it is a fact that these apes do not naturally supplement their hands by the use of implements of any kind, I think it must be the limitation of their needs, not of their intelligence, which has prevented their adopting mechanical accessories.

It is in the human group, which does need mechanical aids, that we find them adopted. The versatility, which became so marked in the monkeys leading an arboreal life, received a fresh impetus when the human group finally took to living on the ground. But modification is not likely to go on fast amongst arboreal animals whilst they continue to live in forest, even though, like the gorilla, they tend to living more and more on the ground and correspondingly less in the trees. It must have been when the human group from living on the ground in the forests, made the next and obvious step of venturing out of the forests into more open country, that further development became necessary. Then it was found how little modification was possible. They doubtless made rapid improvement in bipedal locomotion under the stress of ruthless selection; but at their best they could not attain a speed that, either for escape or pursuit, would enable them to compete with a host of quadrupeds against whose specialized forms they had to hold their own in the open. Still more were their deficiencies apparent in the matter of weapons. They had neither teeth, claws, nor horns which they could use either for attack or for defence. Finally, the erect position and comparatively hairless body made them conspicuous, and did not lend themselves to any modification which could assist in escaping

the vigilance of either prey or foe. For purposes of speed, armament, and concealment, the human form was inadequate, and could not be adapted. Physically the most noticeable peculiarities of man are those modifications by which a quadruped is adapted to an erect gait. The heart has to deal with a higher column of fluid : the viscera require containing and supporting by special arrangement of the abdominal walls and the floor of the pelvis. The inadequacy of even these adaptations is almost daily brought home to the practising surgeon. Though the human group had altered so little from the original model, whose specialization had given rise to more efficient forms in the new environment they were invading, and man was ultimately to possess, they had come too far from their origin to begin afresh : the potentiality was gone : it was too late. The problem of their success became a simple one. Their one strong quality, which they had developed and the animals of more specialized physique had neglected, was versatility. Could they in virtue of their versatility make use of, firstly, their collective powers, secondly, the powers of other animals, and, thirdly, mechanical appliances, to supply the deficiencies of their own physique ?

I have given the three opportunities of the human race in order, but in reality their value is equal. No one of them could be neglected, and doubtless all three were developed simultaneously, if slowly and unevenly. Nowhere to-day do we find mankind without a social system, domestic animals, and tools ; and the less perfect we find these the less exacting do we find the environment, and the less secure the hold upon existence.

For examination, however, the various factors must be considered separately, and it will be most convenient

to take the third first. When we observe how easily apes, and even monkeys, adopt instruments for use in captivity, and how quickly they learn to appreciate a fire, and even, in special cases, to light matches, the extension of the use of mechanical aids, as the human group developed, so far from presenting difficulties, becomes inevitable. Probably a stick was frequently used as an aid in walking before the erect gait was fully attained, and with constant handling of sticks came a dim perception of purchase and leverage, and a practical knowledge of how to strike a blow. With the perfecting of the erect position and increased freedom of the arms and hands a use of missiles follows naturally. After watching a monkey wrap itself in a blanket and even try to run about keeping the blanket still around it, one finds no difficulty in accepting clothing as a very early invention of man's precursors. The manner in which mankind in recent times have increased the efficiency of their tools and gained in artistic perception of the possibilities latent in the materials with which they worked, is the province of the anthropologist. Here my object is only to draw attention to the part played by the versatility which I have already accounted for, in enabling a group of animals to survive in conditions where they had either to increase their physical powers by biological means, or supplement them by mechanical contrivance.

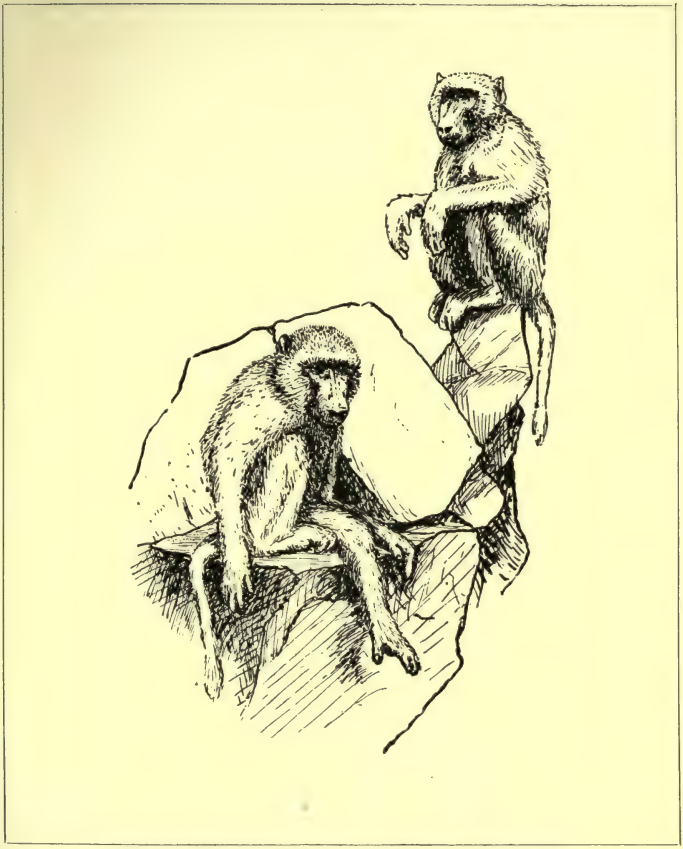
Among the first manifestations of intelligence in the human infant, and one of the most noticeable in most monkeys, is an interest in animals of other species. Sometimes this interest manifests itself in petting, sometimes in tormenting other animals; but often it is shown in putting them to practical uses. A monkey belonging to a caravan will, if not otherwise provided

for, arrange to make its journey on the back of a dog or sheep, or some other animal which will not stray away from the main body. These habits have their biological pedigree. The young monkey is carried about by its mother, to whom it clings tightly. As it grows in size and weight and power to fend for itself, its mother thinks her duties need weigh less heavily upon her, and frequently dislodges her load. The young one does not acquiesce readily at first, and the differences of opinion between jockey and steed are often diverting to watch. So, too, are the little creature's efforts to find a substitute in any good-natured dog or goat upon whose back it can establish itself. Ordinary observation will show anyone that neither monkeys nor children are very discriminating in their choice of playfellows. The association of man with herds of ruminants and horses may well go back far beyond the evolution from the human group of any creature that could be identified with modern man, and the equestrian enthusiasm of the modern fox hunter and Cossack be traceable to the instinct which made the young of primeval monkeys cling to their mothers as they leaped from branch to branch. In the herds of herbivora on the plains, man found guards, companions, and a source of food, which he followed until they grew reconciled to him and carried or dragged him from pasture to pasture for years and centuries. Then, just as man became parasitic on the herds of herbivora, so birds, rodents, and small carnivora found advantage in attaching themselves to the helpless, wasteful creatures which scattered food about wherever they went. It was only in course of time that man arose with sufficient artificial accessories and intelligence to make himself predominant partner of the league; and eventually become owner of the herd

and the poultry, master of the dog and cat, and the victim of the rat.

The vast majority of the primates are gregarious. Many of the lemurs, most of the monkeys of both old and new hemispheres, and, among the anthropoids, the gibbons at any rate, tend to keep together in troops. They seem to do this chiefly for the sake of company, though the benefit they derive from their association in watching against their enemies and searching for food is very apparent. The vigilance and inquisitiveness of a dozen monkeys is a multiple, not the mere sum, of the powers of a dozen individuals. It is difficult to surprise a solitary monkey, but to catch any member of a troop of a dozen is almost impossible. Yet in the forest monkeys, though some species seem to make common cause in keeping their young from danger, there are very few indications of mutual help or organization, and nothing even remotely resembling discipline. The individuals of the community quarrel constantly, if not violently, and are always on the look out to take some mischievous advantage of each other. The great fear of each monkey seems to be that his neighbour may get hold of some dainty before he can forestall him. With the anthropoids we note a different kind of individualism. A patriarchal system is coming in, and the gorilla community especially seems to consist of a single adult male, his wives and children.

Now the baboons are different. They comprise the most terrestrial of the monkeys and, from living in mountains and rocky ground, have gone on to raiding and almost occupying the plains, particularly where they are being cultivated by man. In fact the baboons, among the monkeys, have taken just the line along which the human group, among the anthropoids, have



BABOONS.

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progressed. Accordingly their habits deserve the very closest study. Out of the looser association of the other monkeys they have evolved a social organization. There seems no doubt from the reports of numerous observers that, when they advance to raid a plantation, they send regular scouts ahead; that when assured that the coast is clear, they have a system of sentinels on the look out while they are feeding; that they have definite habits of co-operation, several helping one another for instance in turning over stones too heavy for the strength of one, and sharing the grubs found underneath; that when the alarm is given they have a regular order of retreat in which the old males cover the escape of the females and young before retiring themselves; that they help, defend and avenge any member of their troop who is wounded, and rely, without being disappointed, on each other's assistance. In such an organization there is need for the elements of discipline and means of communication: the discipline is maintained by the older males, and language goes at least as far as distinctive sounds, summoning assistance, giving warning, and announcing the discovery of food. The baboons comprise the largest, strongest, bravest, and most intelligent monkeys, and their further advance might be possible but for the obstacle opposed by man, who, advancing by a parallel road, has already occupied the place they might have gained. Man whilst often inclined to the patriarchal system of the gorilla, would never have reached his present dominant position had he not, besides making good his physical deficiencies by means of mechanical appliances, and supplementing his powers by making use of other animals, at the same time multiplied his individual resources by a co-operation of a kind similar to that of the baboons. By these three

means, however, he secured his position in the fauna of the globe.

Before passing on to another subject, a certain consequence of the way in which man eventually secured his position deserves notice. No one of the three methods of advance just discussed involves great structural changes. I think it can hardly be other than a result of this that we find modern man to-day so strangely uniform in structure. We find man to-day all over the globe, from the Arctic regions to the tropics, occupying every sort of situation, from ice floe to forest, from grassy plain and desert to mountain, from river bank, swamp, and lake to marine archipelago. We find him carrying on his existence in these widely differing localities by adopting the most dissimilar modes of life. In one place he is pastoral, in another he subsists by agriculture, elsewhere he depends on hunting or fishing. Yet, whilst the distinctive characteristics of various races are not to be overlooked, these strange animals which live in such widely separated regions, by such opposite methods, still present a uniformity in essentials of structure which compels the biologist to place them all within a single species. It must surely be because they have solved the problems of gaining a livelihood, and escaping their enemies, by a versatility which enabled them to convert to their needs certain features of every environment into which they have wandered or been driven, that they have maintained their hold on life through long ages without being obliged to adapt their structure to peculiar localities to an extent sufficient to destroy their identity as a species.

So far I have said nothing about the length of time which has passed since modern man as a distinct species arose from the human group. Geological time is so

tremendous that its terms are apt to convey little except to minds habituated to geological conceptions. Moreover, the remains of early members of the human group so far unearthed are so few that the time has not yet come for defining the periods through which modern man was emerging from the human group. But no one who ponders the biological and geological evidence of the skulls from Piltdown in Sussex, from Trinil in Java, from Gibraltar, from Chapelle-aux-Saints, from Heidelberg, Neanderthal, Cro-Magnon and Galley Hill, can fail to be impressed by the variety of human forms in ages vastly remote from the present day, which must for their evolution have required the passage of an enormous time since the separation from the primate stock of the original ancestors of the human group. If we confine our attention to the modern type of man only, we can hardly be more precise. Of recent years an increasing number of early remains of this species have been available for examination, and the oldest are divisible into a number of well-marked races. In this connection Professor Keith says, "We may allow a period of at least two hundred thousand years to have elapsed since the modern type of man appeared; the probability is that his antiquity is infinitely greater, for he is fully evolved when we meet him first."

We may attack the same problem in a different way, by reviewing the end-products of human evolution—the existing races of the present day—and endeavouring to calculate backwards. Mankind at the present day falls into three large divisions, each of which is capable of much, though less definite, subdivision. The main divisions are, of course, parallel groups, but for convenience we must take them in order for purposes of description. In this sense only do

numbers apply to them when one is called the first group, another the second, and so on.

The first division is made up of races which agree in having long, curly or wavy hair on the scalp, luxuriant beards, and, when compared with other races, much hair on the body. The forehead is high, with a pair of bosses, separated by a slight depression, from well-marked brows. The jaws are rather small, the teeth not being large, and consequent upon this the bones of the face are also inclined to be small. The cheek-bones are not prominent, and the face is narrowed, with a well bridged nose and strongly marked chin. The lips tend to be thin. The colour of the skin ranges from black to white. These are the distinguishing characters most discernible to those who have neither the knowledge nor the inclination to go further into anatomical peculiarities. Within this division are included the Australian aborigines,[1] in whom the reduction of the teeth, with the consequent narrowing of the face and raising of the nose, are least marked, the Ainus of Japan, and most of the races of Western Asia, India, and Europe. During recent times the whitest races of this division have spread from Europe over the greater part of the world.

The second division consists of races showing greater uniformity. The hair of the scalp tends to be short, and is ' crinkly.' Beards are absent or scanty, and the body almost free from hair, with a peculiarly soft, velvety skin. The forehead is almost uniformly convex, not as in the foregoing, divided into two bosses, and the brows are weakly developed. The teeth are large, and the jaws and their supporting parts ample in order to hold them. Consequently the face is wide and

[1] The Australian type exhibits so many marked peculiarities that some authorities would make of it a fourth race of equal value with the other three.

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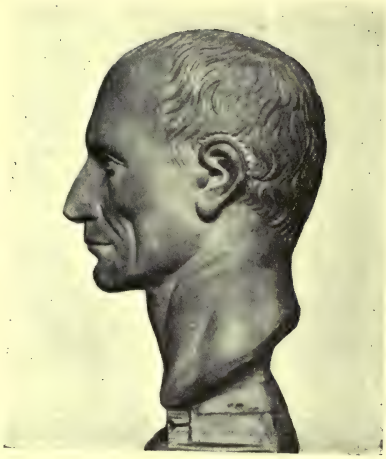

WHITE.

YELLOW.

TYPES OF LIVING RACES.

[*To face p.* 38.

prognathous, with rather small cheek-bones, retreating chin, and flat, wide nose. The lips are thick, and the colour of the skin always dark, often black. The races comprising this division formerly inhabited the tropical parts of the old world and even extended as far as Tasmania. During recent times the Tasmanian branch has been exterminated, and the African negroes more widely distributed by the intervention of white races.

The third great division is popularly called the yellow, or Mongolian race. It is characterized by coarse, straight, often very long hair on the scalp, and scantiness of hair on the face and body. The skin compared with that of the negro is harsh. The forehead is rather high, with weak brows over sunken eyes. The teeth are moderate in size, consequently the jaws are fairly projecting and the chin not very pronounced. A noticeable peculiarity of the type is the great size and width of the cheek-bones, with corresponding smallness of the nose. Along with, and to a certain extent depending on, the large size of the cheek-bones, the smallness of the nose and the weakness of the brows, is found a fold of skin vertically overlapping the inner angle of the eye to which it gives an appearance of obliqueness. The lips are only moderately full or thin. The colour of the skin ranges from light brown to yellow or white. This division of mankind is predominant in Eastern Asia, and, as far as is known at present, an offshoot from it is the only type of man that ever inhabited the American continent prior to the recent migration from Europe.

Even in the light of the few superficial points of difference given here, it will be obvious that the species has diverged into three such very distinct types that it must have required untold ages for their peculiarities

to have been developed and become fixed. But when the races forming one of these divisions are subjected to a like scrutiny and found to be traceable almost as far back as we can trace modern man, we are forced to admit that 'surviving' rather than 'modern' is the term which should be employed. During the decline of the last glacial period, Europe was occupied by a race of tall, large-brained, ingenious and highly artistic men with some peculiarities recalling the Mongolian type. At about the same time, and certainly earlier, for their remains can be traced further back, there were in South Europe—possibly an overflow from North Africa—a race with far more marked negroid characteristics. Prehistoric races being usually named from the site where their remains were first discovered, the former is known as the Cro-Magnon race. The latter, known as the Grimaldi race, was named in honour of the Prince of Monaco, to whom science owes so much. Both these races seem to have become extinct; but later on we find established in Europe as their successors the types which form the bulk of its inhabitants to-day. These comparatively puny and barbaric races must have been the contemporaries of the Cro-Magnon and Grimaldi races somewhere before they replaced them in Europe. Indeed there even seems reason to believe that the Thames valley or Galley Hill type of man, who was established in Europe before the arrival of the Cro-Magnon race, is of the same stock, though coming in advance of the main tide of immigration and being separated from it by a period of severe climatic changes, he possibly became extinct and did not contribute to the population of to-day.[1]

[1] It is only right to say that the age of the remains discovered at Galley Hill is very keenly disputed. While not presuming to decide between conflicting authorities, I am myself convinced by the claims Professor Keith has advanced for accepting their great antiquity.

After the last ice age passed, new types of men invaded and occupied Europe. They were members of the first great division of existing mankind, with wavy hair and more or less light-coloured skins. Along the north of Africa, isolated from the negroes of the southern forests by the great deserts, came a long-headed race of small stature and dark complexion, active but intolerant of cold. Occupying the coasts of the Mediterranean mainly at its western end, this race is spoken of as the 'Mediterranean race.' Across the uplands of Central Europe extending south-east into Asia is established a short-headed race of men, slightly taller, with sallow skins and requiring a considerable altitude for their well-being. These are known as the 'Alpine race.' Thirdly, there is the tall, long-headed, blonde 'Northern race.' There may have been other races as well, but if so they are less easy to trace.

A striking peculiarity of the primates is the freedom with which they interbreed. Monkeys, not merely of different species but of different genera (*Cynocephalus* and *Macacus*), will mate and produce offspring in captivity. Consequently the fertility *inter se* of the various races of modern man is not wonderful; indeed it would not be surprising if the mating of the extinct Neanderthal race with the contemporary Grimaldi and Cro-Magnon, or even representatives of the surviving modern type should be proved to have been possible. Consequently when we consider the migration and movement of armies within historic times, it might have been expected that the distinctions between the Mediterranean, the Alpine, and the Northern races, so noticeable in remains of neolithic times, would have become blurred by later fusion.

Yet this is not the case. Throughout the great

bulk of the population of Europe the three types are still clearly traceable, and in a London crowd of to-day one can still find individuals recalling the palæolithic Thames Valley type. Such consideration cannot fail to direct our thoughts to the long ages that must have been necessary to evolve within the white race characteristics which remain so fixed and persistent. When we add to this the still longer period during which modern man was undergoing separation into the three great divisions already described, we cannot but feel that the period of ten to possibly twelve thousand years through which a small portion of mankind has built up the civilization we know, and kept historical records of the process, is after all only an episode, and feel our imagination stimulated to desire a fuller knowledge of the history and destiny of the human species.

CHAPTER III

EXTINCT SPECIES AND RACES OF MAN AND THEIR CULTURE

Various species of man were widely distributed over the world at a period remote in geological time.

The Neanderthal species became dominant and developed a culture.

It became extinct for reasons which as yet are not known.

There is little from which to infer the history of 'Modern man' during his coexistence with the Neanderthal species.

Various races, of which the best known is the Cro-Magnon race, flourished and attained a high culture before the close of the last ice age.

Human versatility, gaining a margin of power beyond immediate needs, produces philosophy and art.

The growth and decline of prehistoric art follows the same course as that of later ages.

The palæolithic races of Europe and their culture became extinct for reasons that are not known.

Other races survived to replace them and found a new culture.

THE human species, which has become the dominant animal in the world of to-day, and is therefore known by the rather misleading title of 'modern man,' is the survivor of two species, namely, the Neanderthal man and the 'modern man,' which in times past were contemporaries. That, of course, is as far only as our present knowledge takes us. There may have been other species, for these two must have been survivors of the wider human group which, becoming terrestrial, branched off from the anthropoids, leaving them to continue an arboreal life.

Why 'modern man' alone of the human group has survived to inherit the earth, and how he accomplished its conquest, is a problem that cannot yet be solved, and perhaps will remain insoluble for ever.

It would appear that the human group was early distributed over the greater part of the old world. The remains of the two truly human types which show least specialization in a direction leading them away from the common stock of the anthropoids have been unearthed, one at Piltdown in England, and the other at Trinil in Java. The Javan type shows affinity to the Neanderthal man in the skull, though it was a straighter limbed and more lightly built animal. The Piltdown man, though by far the most ape-like of human remains yet found, has much in common with modern man, and may be his ancestral type, while he certainly has no place in the direct line of the Neanderthal man's descent. The age of both is very great, but cannot be fixed with sufficient precision for it to be said if either is older than the modern and the Neanderthal types may possibly be. Until a great deal more is known than has been discovered as yet, the only safe generalization is the very wide one: that the early members of the human group were diverse in structure and extensively distributed over the old world at a period remote in geological time.

Only the later chapters of human history are at all clearly written: there is little from which to reconstruct the earlier ones. This is partly because only a small area of the world's surface has been searched by palæontologists, and partly because man is so difficult an animal to trace. While most animals of the size of man specialized for strength in some members, man compensated his deficiencies in tooth and limb by

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EARLY TYPES OF THE HUMAN GROUP

(restored skulls drawn to scale).

NEANDERTHAL TYPE.	MODERN TYPE.
Trinil man.	Piltdown man.
Chapelle-aux-Saints men.	Cro-Magnon man.

[*To face p.* 44.

making use of sticks and stones. He can be traced much further by the implements he used than by the remains of his body, but in the earlier times in which we most need evidence, he had not learned to make those tools which he fashioned from durable materials of shapes sufficiently characteristic for them to afford us a very reliable guide. Moreover, though he flung the charred and broken bones of the animals he ate, on the floor of the cave where he lived, so that we find them in abundance, he seems usually to have taken the trouble to remove his companions and mates when they died, and to have disposed of them in ways less calculated to preserve them.

The Neanderthal species, whatever its place of origin, was well distributed throughout Europe prior to the last ice age. Their actual bones have been oftenest found in France, chiefly owing to the admirable care and intelligence with which the French anthropologists have sought for them. At present we have not sufficient data to say what was the distribution of this race throughout the world, how densely it populated the area it occupied, or what led to its extinction. We can only infer, observing great caution, its mode of life and how it won and, for a time, held its place in the European fauna, and guess at the way in which a herbivorous animal, accustomed to dealing with very hard food which wore down the crowns of its teeth, an animal of forest and more remotely of arboreal ancestry, poorly endowed, moreover, with mechanism for communication, came eventually to live in caves, to eat the flesh of animals it had killed and cooked over a fire, and to develop a form of social life.

Judging from the bulk of the Neanderthal man, we may infer that both his individual strength and the large

quantity of food he must have required would tend to a solitary rather than a gregarious life. He may well have lived, at first at any rate, in families consisting of a single adult male with his wives and children, as the gorilla does to-day. Moreover, the disparity in the strength of the sexes, in which the greater strength of the male agrees more with the gorilla than with modern man, may well mean that, like the gorilla, the adult Neanderthal man was a morose and savage beast with neither much need nor much toleration for his fellows. In this he was probably following a path which led him away from the original mode of life retained by the other members of the group, and it may well have been this which, in spite of later attempts to retrace his steps, brought him to extinction.

A characteristic universal in all members of the decisively human group is a levelling of the biting edges of the teeth. The long canines, which in other primates overlap the opposing jaw and restrict its play of lateral movement, are reduced in man to the level of the other teeth. This allows of to and fro and side to side, grinding rather than crushing, movements for the mastication of hard vegetable food. As a by-product it made possible the later development of the mechanism of articulate speech. The mouth parts in the earliest discovered remains of the Neanderthal species show that structurally mastication took precedence over speech. This had been to some extent reversed in the time which elapsed before he became extinct.

The earliest Neanderthal men left their remains with those of extinct species of elephant, rhinoceros, hippopotamus, tiger and horse and surviving species of deer and pig. On what terms they lived with these animals we do not know. This was at the beginning

of the pleistocene period, when receding ice was allowing the climate of Europe once more to become temperate. Before the next and most recent ice invasion, he had learned to cook and eat the large animals. He probably killed them at first in self-defence, and for this purpose he used roughly-made stone weapons. We cannot tell whether modern man imitated him in shaping stone weapons or made the discovery independently, or whether on the other hand the Neanderthal man adopted the weapons of ' modern man ' as other races in recent times adopted the firearms which Europeans had invented. There remains yet another possibility, namely, that stones were chipped to make weapons before the human group divided to form the various species we know. As time went on, though his structural features did not undergo a change in kind which would bring them nearer to the modern type, they became less salient and pronounced, and, if enough material were available for the history of the species to be traced, we might find that it had become differentiated into different races. But after the last ice invasion receded from Europe the Neanderthal men were extinct. Before that happened they had taken to building hearths in their caves, to making instruments of bone as well as stone, and to burying their dead. From the age and defective teeth of some specimens it would appear that the community had been evolved which aided and protected all its own members even when old and sick. If the scanty evidence which leads some to believe that the Neanderthal men were cannibals is correctly interpreted, the suppression of the struggle for existence within the community may well have been the outcome of growing competition between communities, and intertribal warfare provided victims for the larder.

Why the Neanderthal man, who though different from modern man and in many ways more brutal, yet possessed as large a brain as well as a more powerful body should have become extinct, is a question which, as we have said, it is impossible to answer with certainty. It may well be that he became too highly specialized during the time when men being few contended not with one another but with nature, to be able to combine on a large enough scale for successful competition against other men after human multiplication shifted the stress of life in a new direction. It may be that his adaptability was insufficient to meet the new conditions brought about by changes in the earth's climate. All that can be said with certainty is that this powerful species became extinct while the modern type of man survived.

Even less is known about the early history of the modern type than of the Neanderthal man. We may speculate upon the course his development took; but we should remember that it is mere *a priori* reasoning on our part. Keeping this steadily in mind we may profitably make the attempt. Of the factors at work in shaping 'modern man,' two at any rate must have been very influential. Firstly, his individual weakness must have confirmed his tendency to associate with his fellows for common safety and advantage. This is the opposite to what I have suggested may have happened in the case of the Neanderthal species. Secondly, the changes in the world's climate which altered the face of the now temperate regions again and again as the ice advanced and receded, alternately exterminating some species of animals and driving out others, then, later on, inviting their return as a new vegetation appeared on the devastated land, must have driven man

to many migrations and compelled him to turn his one strong quality, his versatility, to constant adaptation in face of new conditions. Men who could not form strong communities must have died out; and communities which could not meet needs as they arose could have had little better chance of surviving. The successful community must have possessed collectively the intelligence to perceive the path of least resistance and the enterprise to follow it; and the ingenuity whilst on its wanderings to hunt now the bear and now the pig as each came in its way, to tame now the horse now the reindeer as each was required, to live in either caves or tents according to the dictates of circumstances into which it was forced, and to take ready advantage of the materials nearest to hand where there was necessity to invent or improve the tools for which the physical needs of the occasion called. Selection may well have acted on these lines during long ages even before a trail of stone implements is found indicating the march of man across geological periods. When a failing food supply or an encroaching enemy made a move inevitable, the most adventurous and most intelligent no doubt led the way first and chose the right direction, and those most deficient in these qualities paid the penalty for never managing to move at all. When conditions were favourable only the more stable settled down to make the best of them.

This may or may not be the process which raised man step by step by alternate reward and elimination until the doubtful period was passed and there survived a species with a degree of initiative, adaptability, and cohesion to give to its communities if not to its individuals a secure hold upon existence.

Apart from the Neanderthal men, whom we may

now dismiss, the first race that we know at all well is the Cro-Magnon. When we first catch sight of them they appear to have been the dominant race on earth, but in the course of their history they were contemporaries with the Neanderthal men, the Grimaldi race, the Galley Hill or Thames Valley race, all of whom reached Europe before them, and very likely other races as well. In the last cold period they tower over all their known contemporaries both literally, for they were many of them well over six feet in height while other men stood usually not much over five feet, and also in every field of human attainment. Where their apprenticeship to culture was passed, and by what forces of nature the backward were weeded out and the progressive educated, we do not know; but a long probationary period must lie behind the earliest evidences of their occupation of Southern Europe. They are found between seventy thousand and one hundred thousand years ago living in strong communities, occupying caves, according to some authorities domesticating the reindeer and the horse, which they haltered with twisted ropes, and fashioning weapons of chipped stone and carved bone and horn. In all this we see the results of a process which it would be interesting to trace if we could do so. We can only infer, to recapitulate much that I said in the previous chapter, how the lack of specialization in the nervous system resulted in a high versatility; how the versatility developed into a conscious intelligence, which first compensated the lack of automatic or instinctive response to the needs of a definite environment by a power of adaptation within a very wide range, to any environment, and finally gave more complete powers of choosing a habitat and mastering the natural conditions in which life had to be lived

than were possessed by any other animal. The primitive form of limbs lacked that specialization for a narrow range of movements which by exactly fitting the type for life in a peculiar locality, would have restricted it wholly to that locality; and led, when guided by the versatility, to a quickness in taking advantage of every aid that stick or stone or beast could offer. This led on through the use of tools to the improvement of tools, till they were able to meet a wide range of needs. The association of individuals who, dependent upon one another, formed communities in which the individuals specialized in different directions, contributing to the common need each what each could do best, eventually evolved communities which were so far victorious over nature that to a great extent they rose above an equilibrium with nature and became masters of their environment.

At this point there began a new era in the history of animal life: an animal had been evolved which, not individually but in its communities, had greater powers than were necessary to maintain an equilibrium with opposing forces in its environment. This meant that some at any rate of the individuals forming them were able at certain periods of their lives to enjoy leisure in security, that is to say, that conditions which we now know to be primarily essential to the evolution of philosophy and art had been attained. The man who is relieved from the struggle for existence turns the superfluous intelligence, thus set free, to observation and introspection in an attempt to solve the problem of existence. How the problem appeared to the Cro-Magnon philosophers, and how they attempted to solve it, we cannot tell; but from slight indications, such as the way they buried their dead with the articles they

needed during life around them, we may infer that they did not believe that consciousness was limited to the material plane, or that existence ended with the death of the material body. But in leisure and security other faculties call for exercise besides those which can be employed, if not satisfied, in philosophic speculation. The energy and ingenuity which have been evolved for utilitarian ends do not vanish instantly when the relaxed strain of life no longer demands their full exercise. The man who has made all the weapons he requires goes on whittling at them and develops ornamentation. The possibilities combined in the materials he has been accustomed to work with, and the mastery his skill has gained over them, start him idly experimenting, and later awake a need for self-expression. Thus art is born.

I do not think explanations of the origin of art need be laboured. The same qualities of mind, which perceived first that a piece of broken flint was a good instrument for cutting and then that by further chipping it could be made a still better tool, could also perceive in a piece of bone a resemblance to some familiar object, which resemblance could be made more apparent by scraping and carving with the sharp flint. There is at the present time a tendency to regard the wall or rock paintings of primitive races as the mere accessories of a system of magic. I shall have to consider later how far the kind of magic implied is a primitive and how far a decadent manifestation of social health, but for the present I confess to believing that art originated at any rate for art's sake.

In the development of art the development of the mind is shown as in diagrams. At first the universe appears a composite of unrelated details. A primitive mind exercised in carving a face out of a piece of bone

gives it eyes because faces have eyes, mouth and nose for the same reason, and covers the area of the scalp with lines or bosses which indicate the hair about as realistically as a green wash over certain parts of a map may indicate forest land. The several features have no relation to each other. The only relation they bear is one of juxtaposition for long after a high degree of realism has been attained in the execution of each separate detail. As the mind develops, the idea of things as a whole dawns slowly. The separate features of a face are then treated not as details to be executed and judged separately, but as component parts of a whole to be subordinated to a central idea. Growing powers of observation and perception do away with the ideas of separate eyes, and noses and hair areas to be executed each with elaborate and conventional care and put together like bricks to make a wall. The developing artist is no longer content with his complicated symbol for an eye or a nose; he studies nature to learn what his subject as a whole is really like. This is the ordinary course taken in the growth of art which comes both as a cause and effect of mental development. Then follows decline. The very perfection attained by the most successful artists distracts those who follow them later from nature to art. The aim of the worker is no longer to master nature, but to equal those who have done so. There sets in a period of imitation, of reproduction not from nature, but from other men's conceptions and of other men's methods. Over-elaboration of detail returns with an attention to accessories and externals until nature, no longer seen equal and whole, is lost. This decadence follows in normal course upon the growth and perfection of art, the whole forming a cycle constantly recurring in human history.

The structure and habits of extinct animals have largely been deduced from their jaws and teeth, since these are not only their most characteristic but also their most permanent parts. The mental character and development of races of men have largely been deduced from their carvings and statuary, since not only do these give the clearest evidences of technical skill, but are also the most permanent and consequently abundant objects for comparison.

In this phase of human development, the age of hunters, when men depended for their living upon dexterity and cultivated powers of observation, several races seem to have reached a high standard of artistic capability. Beautiful relics are attributed by some authorities to the skill of the Grimaldi and other races, whether justly or not it is impossible to say. This, however, we know: that the Cro-Magnon men attained to something very near to absolute perfection in artistic achievement. Some of their carvings, both on the flat and in the round, are exquisite. In their paintings, which can still be seen on the walls of caves, they show mastery of colour as well as line. In many of their animal paintings we find colour, proportion and perspective correctly rendered and inspired with that indefinite something we call artistic feeling. The peculiarities of their style seem to place them most naturally alongside the modern Japanese; but in proficiency in their own art they rank as masters of equal standing with the masters of other schools. Like the artists of most primitive races, they occupied themselves mainly with animals. Man at this stage seems to take himself very much for granted and to study himself much less than in the days of a dying civilization, when peculiarities in the temperament of the

individual are the chief preoccupation of the citizen's mind. When talking to savages of to-day it is baffling to find how shrewd they are up to a certain point in weighing the characters of individuals of another race, and how vague they are in identifying individuals of their own. Many men in a tribe will have the same name without apparently being troubled by confusion. Within the tribe, except to the members of his own family, one man is much the same as another unless he holds a definite office. The primitive man is principally concerned with differences of sex, and the primitive artist caricatures these with an emphasis which the modern philistine considers obscene.

Side by side with refined artistic feeling and high technical skill in execution of works of art, we find an extremely primitive style of living. The Cro-Magnon men seem to have lived largely at any rate in caves, and appear to have kept domesticated animals under their control, though some authorities dispute this, asserting that they were hunters only, and that the lines which appear to represent halters on the heads of horses are wrongly interpreted.[1] But apparently they had no need to cultivate plants and developed no system of agriculture. They made little if any earthenware pottery; and though their barbed spears of horn and bone are well finished, their stone implements are roughly chipped and not polished. Apparently they did not work hard, probably because they had no need to; but they adorned themselves with elaborate tattooing or painting, and wore garments of skins and ornaments, such as necklaces of shells pierced and strung.

Further knowledge of the Cro-Magnon race would

[1] Various sections of the human species undoubtedly lost and rediscovered the horse repeatedly during the passage of ages.

be very valuable. It would be intensely interesting to know what they wrought in perishable materials, how they lived, how far their art grew out of their leisure, and how far it contributed to their mental growth, as in no small measure it must have done, both by training the observation and giving standards for work, and also by stimulating contrivance while imposing restraint upon mechanical execution. But the greatest problem of all, a problem whose solution may contain the key to human fate, is the problem of their disappearance. Why did these men with large brains in well-shaped heads, with powerful physique and acute perceptions, with unsurpassed skill in artistic production, falter and stop in their career of achievement and vanish, leaving mankind to start afresh? Just as they became extinct and their blood cannot be traced in surviving races, so, too, did their accomplishments die with them. Their art came to an end, and even the stone weapons of the men who came after them were made in a different way.

CHAPTER IV

THE GROWTH OF HUMAN POWER AND NUMBERS DURING THE NEOLITHIC AGE

After the last ice age the races which form the foundation of the earth's present population began to establish themselves in the localities they occupy to-day.

The road by which man reached his present dominant position is largely a matter of conjecture.

At first man had to struggle for existence against nature. He succeeded by forming co-operative societies.

Later, men found their enemies not in nature but in the men of rival communities.

Natural selection improved man through the competition between communities.

A community gained in strength in proportion as it—

(*a*) divided its work and specialized its workers,

(*b*) concentrated control under a central authority,

(*c*) improved discipline and fostered the self-devotion of individuals,

(*d*) suppressed strife between its members,

(*e*) increased mutual help and protection.

Experience of the needs of the community gave rise to the national religion.

As a result of ages of tribal strife, man has occupied every habitable locality.

Hence he has—

(*a*) developed habits differing widely according to local conditions,

(*b*) by the need of local adaptation become diversified into various races with peculiar characteristics, combining again to form mixed populations,

(*c*) by exchanging the produce and discoveries of diverse environments increased the sum of human power far beyond the needs felt in each particular locality.

HAVING traced one species of man from an uncertain origin to an unexplained extinction, and one branch of the existing human species from a course of advancing development in its mode of life to a comparatively sudden and no more definitely explained disappearance, we have to go back to pick up the trail of yet other races in order to follow them to the same point and if may be further. There seems to be quite satisfactory evidence that man of the Thames Valley type was in Europe before the Cro-Magnon race, but little is known of him or of other races elsewhere. The real occupation of Europe by the Mediterranean race along the south and west, the northern race in the north-east, and the Alpine race across the Central Uplands, came later, the three races establishing themselves successively in the order named. Where these races were developing before we find them invading Europe, and how early their invasion began, is not yet known; for though the Thames Valley man appears allied to the Mediterranean man, he was ahead of the main invasion. Somewhere, no doubt, they were multiplying, though their entry into Europe was more likely due to climatic changes affecting the whole earth than to the pressure of numbers behind them. That was not a factor which had begun to affect mankind as yet.

Moving from a land which was becoming less habitable to a land which was growing more attractive as the cold receded northwards, they found themselves faced by novel conditions which required adaptive response. This would have the double effect of stimu-

lating contrivance and of eliminating the less versatile types. Then different problems to those which had confronted the tall Cro-Magnon men were attacked and solved by other smaller, more numerous, and more interdependent men. These men had to develop a manner of life suitable in the north to forest country, in the south to land fertile between recurring droughts, and in the centre to upland pastures; and many ages had to pass before they found time to devote in security to the arts. The versatility of these peoples was in the end equal to the task, and pastoral and agricultural populations grew up with patriarchal and tribal organizations varying to meet the requirements of varying conditions, and evolving along lines well known to anthropologists. The mastery of man over his environment was again secured, but by a method different to that of the Cro-Magnon men. The day of men who lived in caves, hunted animals, caught fish and picked berries was passed away with the men who had thus found a solution to the problem of existence; and the day had come when men must co-operate to cultivate the land and tend flocks and herds, even though these occupations left them at first less free for refined pursuits. They could not draw or carve like their predecessors, but they learnt to improve their stone tools and weapons and also to polish them, which the Cro-Magnon men had not done. Later they multiplied and became no longer merely indigenous animals, but an occupying population. It is at this point that another great step was made in the development of human methods, a step which contributed in the end to gaining for man, as a species, dominance in the animal kingdom, but at the expense of individual happiness.

There can hardly be room for doubt that during the

rise of the human group man had very little need to compete against man. It was to nature that he looked for spoil, and from nature that he feared danger. His neighbours were too few and distant to be either feared or robbed. Moreover, when entering into possession of a land of apparently limitless resources, existence was a happy, hand-to-mouth affair, and things readily obtainable by all were not worth hoarding. This meant that on the one hand there was little a tribe or family could steal from its neighbours and little it need protect from them; while within the tribe or family things in common use were common property. Races like the negroes of tropical Africa, which, remaining in a land where living is easy, retain many primitive characteristics, still to a great extent take a communistic view of property, and their thoughtless way of helping themselves to whatever takes their fancy at the moment, makes them appear to more advanced races incorrigible thieves. This verdict is not quite fair to the negro in his earlier intercourse with white men before an incomprehensible civilization for which he has no capacity has demoralized him. The negro who appropriates his master's razor to cut up the antelopes he shoots, or supplements his attire with garments from his master's wardrobe on occasions when he wishes to look smart, is acting naturally and correctly according to his own standards. Unfortunately his instincts and theory of conduct are not changed by a few explanations or even punishments, and he long remains uncertain about the ownership of food or articles within the establishment to which he belongs. So far as we have traced human development in this brief review, man has in the main been the indispensable complement of man, and men have held their own against nature by mutual help,

man's relation to the rest of nature being so far closely parallel to that which may be studied in the baboons of to-day. We are now coming to a stage when man has to such an extent subdued nature that he sees his chief obstacle and danger in the rivalry of other men.

It is possible, as I have suggested above, that this stage may have been reached before. The disappearance of the Neanderthal species and the Cro-Magnon race may mean that each of them fell under direct or indirect competition amongst themselves or with other men. But in the transition from neolithic to recent times we can see, for the first time unmistakably, the shaping influence of human competition. In proportion as human communities grew numerous and increased in size the stress of life increased, also even if there was enough for all it was not all equally good and equally accessible. Man, especially in childhood, does not like waiting for his turn. Herdsmen found it worth while to strive with one another for the possession of the wells where they watered their beasts in a drought. The agriculturalists found it necessary to beat off marauders who, endeavouring to seize the fruits that had been cultivated and brought to maturity, would have fed themselves with the products of other people's toil. Man, in gaining his control over nature, had interposed human labour between the production by nature and the consumption by man. The stone had to be shaped and hafted to serve as a weapon or tool, the beasts had to be tended and the ground cultivated to ensure a food supply for the community. A man like any other animal had at times to make sure of getting enough for himself when there was not enough for all, and in proportion to the increasing demands production made upon his toil, he became aware of the

advantages of consuming what others had produced. Hence the struggle for existence and the struggle for luxury between man and man arose to work further changes in the human species and its character and mode of life. Man had found the need for capital.

By this time the use of other animals and of mechanical appliances may be considered to have been established, no matter in how elementary a form, but the principle of human co-operation was as yet very imperfect. As, however, the pressure of life was raised the need for individual restraint grew. The individual who endeavoured to secure advantage for himself at the expense of other members of the community to which he belonged, or who tried to evade making his personal contribution towards maintaining the safety of the community when it had to hold its own against the rest of nature, was a source of weakness to the unit apart from which he could not exist. The thief and the idler, the brawler and the coward, no less than the weakling, had to be eliminated from the community, this principle remaining the foundation of criminal law to this day; and the community which could not count on the forbearance, industry and devotion—devotion shown both by watchfulness and courage—of its members might be able to maintain its gregarious existence in a sheltered environment for a time, but it was most certainly doomed as soon as it came into competition with a community whose members had attained a uniformly higher standard in social virtues. When the instinctive individualism, so generally noticeable in the primate stock to which man belongs, is borne in mind, it can well be believed that tens of thousands of years spent in remorseless selection by unceasing conflict were necessary to evolve communities, each member of which was willing to put

the welfare of the community before his own advantage and, if destruction threatened, before his own safety. The instinct to protect mate and offspring goes far back in mammalian history, and the elaboration of this into tribal life, an arrangement ensuring greater safety than family life, no doubt goes far back in the history of the human group. But to bring tribal instinct to perfection and make co-operation on a great scale possible, the common enemy, against which the men of the community combined, had to be something more incalculable than inanimate nature, more dangerous than the less versatile animals; in fact the standard of the human community could only be raised by a struggle for survival with other human communities. This contest became inevitable as soon as man's control over his environment enabled him to defeat the checks nature had imposed on his rapid multiplication; and was no less bound to result in new developments for the human species, since it was the only method of selection to which mankind as then existing had not been subjected.

The lines along which this new method worked are not hard to trace. The versatility which came to compensate for lack of specialization in the motor and sensory mechanism of the body had before this led to a variety in the individuals of the same tribe and even the same family. This, while it has contributed very largely to the ultimate triumph of the species, has been a source of bewilderment and discontent to the bulk of mankind for ages. Among mammals, apart from complementary sexual differences, there must be a uniformity of faculties in all individuals of the same species. An individual which, even by a little in even a single quality, falls short of the average of its species

cannot maintain its hold on life. A beast of prey which falls short of effectiveness in sensing its quarry, killing it, or digesting it, must starve. In animals which hunt in troops, and in ruminants which associate in herds, there is more scope for complementary variety; but even among these the standard of efficiency is a dead level when compared with that of man. But among the children of the same human parents one brother may excel in devising new weapons, but be incapable of using them ; another may be dexterous in using them, but helpless at devising them ; while a third, who can neither plan weapons nor use them, may have a faculty for fashioning them under direction which is almost lacking in the brother who designs and the brother who uses them. We have to go to the invertebrates to find among the ants and kindred insects a parallel for this complementary diversity. Even here the parallel is more apparent than real, for it is based upon structural differences. The social insects determine according to the needs of the community whether an individual shall develop the structure as well as the instincts of a worker, a soldier or a breeder; while in the human community only the most enlightened observers can discover the highest aptitudes of the individual behind an almost complete uniformity of externals. So great is the difficulty of discovering peculiar aptitudes that these are to a great extent disregarded in view of the certainty of general versatility. Individuals are specialized by training so that a sufficient number is produced of the different classes—of thinkers, leaders, and workers—which the community requires. As a rule, even in highly organized communities only haphazard and perfunctory efforts are directed to the discovery of individual peculiarities. This is partly,

no doubt, because the proportion of individuals who have one special power markedly in excess of their general versatility and capacity for education, is very small. In the prevailing absence of discriminating advisers the advanced community usually educates individuals and allots tasks according to the work to be done, not to the capacity of the individual worker. Thus, while on the one hand misdirected education often by thwarting the natural bent of an exceptionally specialized individual reduces to uselessness one who should become of exceptional value, on the other hand attempts to push development, in cases where the aptitude has been correctly guessed, sometimes succeed only in making the victim loathe the thing he is naturally best fitted to do.

In the history of the species, conscious attempts at special education come fairly late. Yet all the time there was the fact that one man could sling stones with more deadly effect than any other member of his tribe, and another found the enemy's heads most easily damaged by a heavy club. The fact that men did by preference what came easiest to each of them, led to specialization and increased the effectiveness of the tribe as a whole; but there can hardly be a doubt that diversity of function came long before conscious attempts to apportion duties. Nature compelled a considerable division of labour before man consciously adopted and tried to develop the principle. The men of the tribe would naturally go after the big prizes from physical promptings of necessity; and the women take charge of the food, preparing and cooking the spoils of the chase, and cultivating useful plants near their dwellings, because such occupations would not interfere with their maternal duties as must work which would take them further afield. The beginnings of organization came doubtless

in bringing up the children to be useful. For instance, whilst initiating boys into the mysteries of herding cattle or hunting game it became necessary to do more than develop a natural instinct, as a cat does when she brings a half-stupefied mouse to her kittens. This process had to develop until the elders learned to repress individualism and carelessness in the boys which would spoil their concerted movements. Up to this point the development of human organization does not go further than that of other animals, being dependent upon restricted competition between man and man and the community's battle for existence against nature.

When the struggle for existence came to be for man a struggle for advantage between human communities, the time for an essential change was reached. The novelty consisted in organization and control, not merely of the women and children, but of the adult males of the tribe. Where similar conditions of environment produced, after the elimination of inferior and backward types, tribes whose control over nature brought them to approximately equal numbers, the tribe which evolved the highest discipline would outclass its competitors. Not only would its discipline make it more formidable in war, but internal control would make for cohesion and the growth of numbers. Perhaps the most important step taken by man in his advance towards dominance was the concentration of control over the many in the hands of a few.

It is not necessary to suppose that this was a sudden discovery or a policy adopted by design. The right to command and the duty of obedience are late conceptions. The first step towards them is initiative in one of a crowd. Wherever a number of individuals are co-operating for a common object, real progress only

begins when the many begin to distrust their independent judgment and look for a lead, and the one is found with the self-confidence—a thing not necessarily identical with exceptional intelligence—to give it. The earliest commanders gave signals rather than orders, for as yet discipline was unknown. In shifting a heavy stone or launching a big canoe, it would be "All ready? Together now! Heave!" Or in war the leader's order to charge was most likely issued as advice: "Now's our chance: come on," while the order to retire was no doubt often given by personal example. When the tribe's growing confidence in its prowess led it to resist an organized attack the order, "Stand to arms" would be a warning, "Look out, here they come." But again organized warfare is a late development. Primitive races hate open fighting. Discipline, co-ordination, and mutual confidence had to grow through a long period, during which the men of a tribe learnt to overwhelm a single beast in the chase, to kidnap a stray woman from their neighbours, and to ambush enemies very much fewer in numbers than themselves, before there first took place a pitched battle in the open between two tribes, each of which welcomed the encounter in the belief that it would be victorious.

As the advantages of discipline were felt, if not consciously perceived, the tribe with the best signalman and the most obedient rank and file would begin to eat up its neighbours, mainly by killing off their men and capturing their women. Eventually the importance of the signalman would lead to the foundation of a recognized office which would be desired by all for its perquisites, its opportunities, and the power it gave its holder of choosing the safest and most advantageous position in times of conflict. It would be an office

which the strongest would try to seize, and the tribe as a whole would wish to allot to the man in whose sagacity it had the greatest confidence. In course of time the signalman would become in reality a king, with the power to enforce obedience and to dispose of the members of the tribe as his conception of strategy should require; while during the same period the many would have become habituated to reliance on a central authority and repressive towards initiative in the wrong place. Thus the foundations of government were laid.

The continued existence of a community depends on its power to beat its rivals. It is essentially the same whether the rivals attack and have to be beaten off, or whether their near presence is so irksome or their possessions so desirable that they have to be attacked. The nations of to-day no less than the savage tribes of the remote past exist in virtue of their ability to organize themselves for the struggle for existence. The organization in face of rivals depends on what we now call patriotism. Patriotism is a nation's instinct of self-preservation, manifested in the individuals of which the nation is composed by an instinctive readiness for self-sacrifice where the interests of the nation are concerned.[1] But patriotism which is concerned with any danger threatening the community from without, needs as its complement a form of self-restraint, within the community, for which we have no such definite name. 'Citizenship' perhaps comes nearest to expressing what we mean. The main point is this, that in order that a community may carry on the struggle for existence with success against other communities, the component members must suppress the struggle for existence between

[1] I have made this the subject of a special study, published under the title of "Patriotism" by Messrs. Bell & Son, 1911.

themselves. Only by maintaining a balance between the capacity for waging war without and maintaining peace within its frontiers can a nation ensure its survival.

In the early days of man's struggle with nature the community was small, and though there was no doubt frequent quarrelling, as there is to-day in a troop of monkeys or a pack of wolves, the members had grown or were growing up together and knew their respective levels fairly well. Rivalry between two members, whose strength was so nearly equal that its eventual settlement involved the death or expulsion of one of them, was rare, and usually meant the supplanting of an old leader by a younger one. But when the growing severity of the conditions of life required the maintenance of large communities with many adult males, it became necessary to prevent any dispute, which might arise, from being settled in a way which would destroy or impair the general efficiency of either of the disputants. A warrior, who quarrels with another warrior of the tribe, knows that if he kills or cripples him he will be without his help in the next conflict with the neighbouring tribe; and if in the exasperation of the moment he is liable to forget this, the other members of the tribe for their common good restrain him. Duels between animals of the same species, particularly gregarious animals of the same herd, very rarely end fatally. It might be to the advantage of an individual to kill all his rivals, but by so doing he would weaken the herd and end by perishing with it. Consequently we find natural selection has made the weapons of male animals which fight with one another almost harmless against each other. The antlers of a stag may be deadly weapons against a wolf; but when two stags engage in their periodic contests for the females, their antlers do not inflict

wounds, but interlock and allow them to wrestle harmlessly until the exhaustion of one leaves the other a victor. It is not necessary to give further instances of this principle : they will occur in numbers to the reader's mind. It is different, however, with man. The primitive and unspecialized structure of man leaves him without natural weapons. He has had, therefore, to make good this deficiency by his nervous versatility, and the earliest way in which his intelligence showed itself was in providing himself weapons of wood and stone. As natural selection could not ensure these weapons being effective against warriors of other tribes and harmless against those of his own, we find the men who survive are those who have the restraint to use their weapons only against enemies outside the group to which they belong. But such restraint is more than can be expected from the individual. The individual is swayed by a far more primitive instinct than is the tribe collectively, and tries to beat his rival as effectively as he can. The restraint had to come from outside, in this case from the community, which had need of both disputants, and this acted in the direction of strengthening tribal life.

Once again, however, we must be careful not to anticipate. A large and powerful community is able to exercise very effective control over its individual members ; but during the earlier stages of its growth it had to rely more on what the individual would concede than on what it could enforce. When two of the principal warriors of a small tribe quarrelled, their fellows had not the collective strength to compel them to arrange their differences. One had to go, and, as it was to the interest of the tribe that the member which it must lose should be the less useful of the two,

they were encouraged to fight it out. Duels of this kind survive in some armies to this day. As the tribe increased in numbers and the individuals decreased in importance, it became more and more possible to regulate disputes, first by insisting on fair play, then by forbidding a contest with any but blunt and non-fatal weapons, then by leaving it to the chief—the military director of the tribe—to decide which warrior was of most use to him and which must yield or if necessary be sacrificed. In this way a process of selection went on within the tribe. When at last tribes had grown so that the numbers were large and the disputants relatively insignificant, it eventually became more important to satisfy general opinion and thereby build up a sense of personal security than to draw fine distinctions between the prowess of individual warriors; and then followed a stage when the tribe directed its ingenuity to attempting to settle the dispute according to the merits of the question at issue, not the personal qualities of the combatants. Thus a system of justice grows up.

The evolution of a system of justice has been begun and developed again and again by different communities, and, long after the principle of deciding disputes according to equity has been formally adopted, the practice of favouring the more important member of the tribe has survived in some form or other. Sometimes the onus of deciding was thrown on the tribal god and lots were drawn to ascertain his will, sometimes the relative wealth of the litigants became in some way the deciding factor. To this day there has not arisen a nation in which equity is the sole consideration in the settlement of disputes; for, though the voice of the doctrinaire may be convincing, the power of nature is overwhelming, and the professed wishes of the community to place

equity before expediency can only be fulfilled so far as the exigencies of nature will allow.

There is one more factor in the make up of a human community. I have mentioned the defensive attitude against nature without and the repressive attitude towards strife within. The third element is a spirit of mutual help. If one member of a tribe is wounded or sick, or has lost his property by fire or thieves, the community must recognize that the misfortune of the individual is the misfortune of the whole tribe. If his neighbours took advantage of his momentary weakness they would weaken the tribe. It is to the best interests of the tribe not merely to show forbearance, but to help him to regain his strength and effectiveness as soon as possible. This, of course, is really an extension of the principle of repressing the struggle for existence within the community. Within its borders it becomes the object of the community not to promote the survival of the fittest, but to fit as many as possible to survive. It need not be supposed that this was a deliberate policy consciously adopted: it no doubt grew naturally out of family life and the habits entailed by a long infancy and adolescence. Had it been adopted too early it would have retarded the improvement of the stock. Later, undoubtedly, it aided in strengthening the community. Later still, as we shall see, the policy developed into a habit of preserving the degenerate and weakly as well as those temporarily disabled, and had a deteriorating effect.

As the ages passed and the tribe grew into the nation, large in numbers and complex in organization, a bond was required to co-ordinate the numerous and often perplexing principles which governed national life. This co-ordinating bond also grew naturally out of the

conditions of time and place. Man's capacity for understanding himself and the forces of nature grew slowly, and his solution of the problems which faced him was often grotesque. It was probably late in his history that he learnt to distinguish at all clearly between the material world of his senses and the spirit world of his dreams and fancies; or to divide causes of events into the two groups which he afterwards came to call natural and supernatural. But in time the nation grew to recognize a system whose success testified to some divine sanction, and, identifying this with a peculiar god or pantheon of its own, unconsciously organized ceremonial, and, entrusting it to a branch of its civil service, discovered that it had a religion.

During tens of thousands of years the evolution of the human community went on without observers or direct records. It is probably only some ten to twelve thousand years ago that the process began to blossom into the period of which a precise history can be deciphered. Before attempting to follow the human species through this period it will be well to review the position that it had then reached.

In neolithic times the modern or surviving type of man has spread over the whole of the habitable world, with the possible exception of a few inaccessible islands, and he has adopted everywhere a mode of life which has enabled him to multiply up to the limits of his accommodation. His advance in complexity of life has not been uniform, for at many stages groups have established themselves in forest, swamp, and mountain where their further evolution not being necessary they have been left behind by those whom the pressure of circumstances compelled to go further in development. But no matter what the different localities have demanded of

him, man has taken possession of them, and the occupation being based on stable ways, he cannot now migrate easily. This general occupation of the lands has had three effects which influence the history of the species profoundly. Firstly, men settled in different conditions of climate and physical environment must of necessity solve the problems of life in totally different ways. Men living on wide grassy steppes will be carrying on a pastoral existence, wandering in an eternal journey through the cycle of feeding grounds visited by their flocks and herds; while at the other end of the scale men in an archipelago will be spending a large part of their lives in boats on the sea. Where the earth is suitable to agriculture, or forest-country encourages the hunter, yet other communities will live, maintaining themselves in ways which would be incomprehensible to their neighbours of the plains or islands. The Eskimo in the Arctic, the Frenchman in Paris, and the negro in an African swamp find one another incomprehensible even to-day.

But the adoption of different habitations, entailing different habits, is inextricably associated with physical adaptation to the particular locality. The one great natural advantage which man possesses is his versatility, and this very quality stands in the way of marked structural changes. The type of hands and limbs and teeth do not need altering; but divergent adaptation to climatic differences and changes is essential to animals straying into countries of opposite character. Apart from the unlikeness in the diet available on the steppes of Russia and in the swamps of the Congo, the difference in the temperature and humidity of the air make the regulation of the body heat and the excretion of waste products by the skin and kidneys widely different

functions in such dissimilar situations. Physiological adaptation follows naturally, compelled by natural selection, and, when established, tends to keep races tied to definite localities. This, however, is not all. The segregation of human races does not depend entirely on the direct physiological influence of climate. Indigenous micro-organisms, both animal and vegetable, treat the tissues of newly arrived animals as fresh pabulum in which to gain a lodgment and start growth. Until mutual tolerance has been acquired, zymotic disease is at work repressing the activity of the invaders. Where in a given land a strain of mankind has through a long period been evolved which is in equilibrium with the more primitive fauna and flora, later immigrants are likely to be repelled by strange and deadly diseases; for the native men have developed tolerance for their constant enemies, and the local germs have increased in virulence for the general human tissues.

Thus in the course of time selection in remote localities offering widely diverse conditions led to the segregation of distinct strains, and man became a type of a polymorphic species: a joy and despair to Mendelian enthusiasts. Later wanderings and conquests and the increasing complexity of life produced the mixed populations on which civilization depends with all its perplexities.

At the present day man is essentially polymorphic, and exists everywhere in 'mixed populations.' It is often denied that there are any 'pure races' now. The subject is a very difficult one; for large mixed populations have fundamental affinities and can become isolated and diverge in bulk. In this sense it is correct and convenient to speak of human 'races' to-day. By the Anglo-Saxon race we mean a very mixed popula-

tion held together by most complex bonds. The Japanese race is no more a homogeneous biological entity than the Anglo-Saxon. Attempts to distinguish between an English and a German race, or between a Japanese and a Chinese race, lead biologically to confusion. Though, if we know exactly in what sense the terms are used, they may be convenient. Yet there is a true biological difference between the whole mixed population of the Japanese islands and of Great Britain which may be called racial. There is a wide difference between the biological constitution of the mixed populations of England and India, though both are claimed to be peopled by branches of the 'Aryan race.' If we restrict the use of the word 'race' to the mixed populations of district geographical areas, we may use it to describe true biological entities, produced by independent evolution along diverging lines. Intermingling of 'different races' may produce recognizable biological effects, for a recombination of factors when brought about by the crossing of widely divergent strains sometimes results in the reconstruction of types too primitive to fit into any modern community. The moral deficiencies so often to be deplored in 'half-castes' are no doubt a reversion to a mental condition from which the parent races made their escape by discarding different encumbrances.

It is interesting to compare the way in which certain other animals, through their association with man, have likewise been split up into polymorphic species, and with the growth of human civilization have likewise been liable to form mixed populations. Speaking of the dog, Darwin says: "The existence of a single race, remarkably constant in form during the whole Neolithic period, is an interesting fact in contrast with what we

see of the changes which the races underwent during the period of the successive Egyptian monuments, and in contrast with our existing dogs." Here again we may see the recombination of very divergent stocks produce animals too primitive to be compatible with our civilization. The all-round sagacity of mongrels has often been contrasted with the specialized instincts of particular breeds, and what we unsympathetically describe as 'curs' have at times a mental equipment too complete to leave room for dependence on human patronage.

Consequent upon its dispersion we find the human species divided up into different races or strains, and these strains firmly rooted in different lands to which they are fitted by physical adaptation. Long ages pass, and the human stock with which continents are populated remains unchanged. Within historical times hordes of men from an overpopulated area have been known to start upon a career of conquest, and after their adventure has come to an exhausted end the lands they have for a time overrun show hardly appreciable traces of them in their population. Slow changes in climate, insidious alterations in the food supply, and the steady overflow of a constantly expanding population from a restricted area, will work permanent changes amongst the collective races of mankind; but apart from these influences, both the mode of life and the place of abode tend to remain stable for the various sections of mankind over immense periods of time.

There remains the third result of the filling up of the world with men. Besides fixed habitations in differing environments inducing differing modes of life, besides various conditions leading to modification of distinct races and formation of mixed populations,

there came into being a habit of interchange of spoils between distinct races; a practice of borrowing, bartering, thieving, and imitating wherever neighbouring communities came in contact. For instance, Goddard says, in writing about the North American Indians: "We are told by the Coronado writers and by Espejo that the nomadic peoples of the plains and of the mountains of the south-west brought the meat and the hides of buffalo and deer to the pueblos and exchanged them for mantles of cotton and for corn. This exchange of products allowed one people to concentrate upon agriculture and the other upon hunting, yet each to have both corn and meat for food, and cotton cloth and dressed skins for clothing." To-day we call the same thing trade, only trade does not express it all. Neighbours obtain from each other not only their surplus produce, but also ideas. The men who first discovered how to work metals were copied by their neighbours who had hitherto made implements only of stone, just as Asiatic nations, who manufacture firearms to-day, did not perfect them for themselves, but derived them from European races.

The inventiveness of man is very limited after all. Every race of men does not pass through an ordered sequence of discoveries from rough stone to tempered steel. Different conditions give rise to differing needs in differing races, and leads to the evolution of different aptitudes. The broad physical uniformity of the modern species of man is liable to overshadow the differences between race and race and between man and man within the races. There came a stage when these differences became one of the chief factors in modifying human life. These differences are important again as the main corrective to specialization of races in particular

environments with consequent loss of adaptability. Two races would live side by side and one invent bronze weapons, while the other found no need for anything better than stone. The conservatism of the stone men would have nothing to say to the bronze weapons: would neither imitate nor buy them. Then the innovators gave their backward neighbours a practical lesson in the advantages of bronze by overrunning them and introducing bronze for their own purposes. Before long the conquerors disappeared. They represented only a restless surplus of their own people whose strength lay in their weapons not in their numbers, and their unfitness for the land they had conquered, their susceptibility to unfamiliar diseases, and their inability to escape absorption in the mass of the indigenes prevented their invasion from having any lasting effect on the population. They vanished, but they left their victims the richer by a knowledge of bronze. This, of course, is merely a sketch of the principle. Abundant instances of its working in modern times are available for study, in the spread of firearms, the introduction of the horse, and later the war-chariot into Europe and Egypt from the East, the spread of various successful principles of military tactics from different centres, and, perhaps most interesting of all, the gradual extension of the Roman system of law and discipline throughout the Mediterranean. The details in each case differ. Sometimes the invaders succeeded in establishing themselves on the scene of their conquest. According to some authorities it was the Alpine race which introduced metal working into Europe from the East. Sometimes they held their own long enough to destroy more than they introduced. It is hardly too much to say that the Spaniards did this when they conquered Mexico and

Peru by means of their firearms and horses. Sometimes an invention does not become rooted in a new soil, but establishes only a new trade need, in which case those who adopt it, not being physiologically prepared for it, may derive more harm than good. The early introduction, as beverages, of potent forms of alcohol into America and the typical region of Africa are instances of this.

It will be seen at once what an immense influence this habit of exchange and adoption, voluntary or involuntary, must have had upon the development of the species. It involves, on the one hand, a further advance of human power over nature, beyond the need of human requirement; while, on the other hand, it places an obstacle in the way of too close a specialization for a particular locality, and thereby fosters the characteristic human versatility and retards physical divergences. The human population of a particular district might be able to maintain itself in equilibrium with nature by means of stone implements, and, not experiencing the need of metal, never adopt its use if it did not receive instruction in the working and use of metal from a neighbour whose needs and opportunities were different. Having adopted the use of metal, the equilibrium with nature, which had formerly been maintained with nothing better than chipped stone, would be altered very considerably in favour of man.

Hence the filling up of the earth with men has led to the following results: fixation in definite localities of populations differing from one another in slight physiological specialization for life in each particular locality; development of the control over nature by the concentration of each community upon the problems

of life presented by its peculiar circumstances; and interchange of local products and experience, with the result that large sections of mankind have been raised to a superiority over the general conditions of life far beyond anything their immediate needs would have taught them. Although in vast areas of the earth's surface sections of the human species have become isolated and held until recently little or no intercourse with each other, and the balance between man and nature is very dissimilar in these various areas, man as a species had undoubtedly become the dominant animal in the world by the time when the historic period opens.

Here one may pause. In this chapter and the preceding one I have endeavoured to trace the route by which one species of the human group has survived to become the dominant animal throughout the world. The consequences of his period of supremacy I shall endeavour to examine in the next chapter.

CHAPTER V

THE ORIGINS OF CIVILIZATION

Man having conquered his environment, first learnt to live up to its natural resources, then began trying to increase them by artificial development.

Man passing from occupation to exploitation enabled the land to support a larger population than in its undeveloped state, thus evolving civilization.

Civilization is a recent phase.

A new order arises where predatory and vegetative races react on each other.

Civilization is essentially a slavery.

Slavery improved the population by substituting individual selection for competition of communities.

Masters and slaves eventually become merged in a common slavery to the system they have built up.

There is a struggle for existence between civilizations.

Every system after growing to maturity decays.

Civilization arose independently in several isolated localities.

The fundamentals of civilization are uniform. Need for writing or an equivalent is one of them.

Precision is impossible regarding the—

(*a*) place,

(*b*) time,

of civilized origins.

FOR a period that must be reckoned in hundreds of thousands of years, man of the modern type has been an inhabitant of the earth. During the greater part of this time he lived as other animals live, that is to say, maintaining a state of equili-

brium with the natural forces of his environment. Disease, climatic changes and other animals tended to keep down his numbers; but his natural fertility and natural endowments limited and restored his losses. His weakness, however, and his physical inadaptability fostered his versatility. The practice of meeting his needs by mental ingenuity was less dependent, for its development and results, upon the direct stimulus of his immediate environment than the capacity for bodily change, which in other groups of animals has produced more specialization of structural form. Hence he eventually went beyond maintaining a mere equilibrium, and established an ascendancy in the world with a comfortable margin of power to spare. This became the starting-point for a new phase in the history of the species: man having conquered his environment, began to alter and adapt it to his needs. He had already learnt how to live up to the resources of the land: he now set to work to increase those resources to an extent that would support an increased population. Onwards from a certain point in his history we find man continually engaged in altering the face of the territory he occupies, felling forests, clearing bush, draining swamps, and either damming streams or diverting their courses to irrigate deserts. No longer content with the natural productivity of the earth, we find him ploughing the soil and planting useful vegetables, fencing in the animals he needs and exterminating those he fears, and sometimes unconsciously, sometimes with intention, improving both plants and animals for his use. These operations, which effect more or less directly an increase in the food supply, are, however, only one half of the new activity. The other half is concerned with the management of the increased population which the altered territory

supports; and is concerned with the building of cities, the making of roads and the digging of canals. All this interference with the ordinary course of nature is only made possible by a systematic regulation of life which inevitably becomes very complex. The whole mode of existence is summed up in the word 'civilization.'

In a civilization the economy of labour and material, and the security of person and property, produce conditions which permit art and science to flourish and the elegances and refinements of human intercourse to be observed. Sometimes the word 'civilization' is used to denote the mode of life of any human community in which any artistic refinement or mechanical contrivance can be detected, or in which any restraints upon conduct are enforced; the only distinction drawn between civilizations being that some are styled 'higher' or 'lower' than others. Hence we hear people speaking of the Cro-Magnon civilization, and even referring to the way in which the Neanderthal men lived long ago, or the style in which the negroes, who build a few huts in a huddled group between the giant trees of an African forest, carry on existence at the present time, as civilizations. I think it would be better if the term 'civilization' were restricted to the mode of life in a territory which is maintaining a larger population than could live on the land if the people were not organized to develop its resources. No one will deny that the relics of the Cro-Magnon race show some of them to have been individually men of intelligence and refinement, perhaps equal in these respects to the civilized men of to-day. But the land in which they lived does not yield evidence that it was occupied by a population so dense as to need high organization for obtaining the necessities of life from the soil. They have left no clue to any process

by which they passed beyond occupation to exploitation of the land. There are no ruined cities, or remains of roads, canals, drains, mines, irrigation works, and no evidence of a written language, without which the co-ordination necessary for great engineering operations is impossible. The manner in which the Cro-Magnon men lived in palæolithic times and the Babylonians lived four thousand years ago, cannot be described with any precision by the same word.

Using the term in the sense I have indicated, there seems to have been no civilization until within the last ten thousand or twelve thousand years. At times and in places the human population became very numerous, middens and burial-places witness to this, and such monuments to concerted effort as Stonehenge show that numbers and engineering ability were not wanting. But great civilizations like those whose ruins remain in Peru, Mexico, Egypt, the Euphrates Valley, India and China had not come into being. They arose comparatively locally, comparatively recently, and comparatively suddenly. They seem to have been called forth by new conditions, and to mark a new phase in the history of the species.

The period of civilization is distinctly a phase, for the condition of man under civilization is comparatively uniform. Civilizations are entities which arise, grow, mature, decay, and are succeeded, not renewed; and the later civilizations differ amazingly little in essentials, details, or destiny from the earliest. So far the phase falls naturally into two periods, but before discussing these it is necessary to define more precisely what civilization is and account for the way in which it arose.

The conditions preliminary to civilization were reached at a time when the habitable parts of the

earth had been filled up. When peoples became rooted in the soil and the inequalities in the human species locally intensified, characteristics tended to become fixed. In some regions, such as mountains and deserts, particular races of men became hardy and, from the uncertainties and difficulties of gaining a livelihood, unsettled and addicted to preying upon their neighbours. In other regions, such as the fertile valleys of great rivers, different peoples multiplied, with few natural checks, filling the land with an indolent and feeble population. Since the fertility of the richer parts of the earth was such as to enable those who lived on them to recover easily after they had been spoiled, they did not develop the qualities necessary to resistance, and successive raiders repeatedly found them defenceless. In fact, there came of necessity a divergence into what may be called predatory and vegetative races.

Now without an external stimulus calling for adaptive response, man no more changes his habits than less versatile animals alter their bodily forms. Some sections of the human species, notably those in the tropical forests, live now as they did fifty thousand years ago. But in less hospitable parts of the world, where conditions are more variable and the exuberance of vegetation less overwhelming, stimuli which precipitate a change recur at comparatively short intervals. An insufficiency of food, an excess of men or a shortage of women, will send men out of the desert or down from the mountains and start those inquiries which lead to their hearing that there is "corn in Egypt." The stimulus, when it comes, produces change, not in the body directly by selection, but, first in the mode of life, by calls upon man's mental versatility. When conditions throw together men of different races coming from

dissimilar environments, human ingenuity has abundant materials to work on at the meeting-place. Here lies the germ of a new order of existence. First, no doubt, came the discovery that it is more profitable for the victors in the inevitable conflict to make their individual captives work than to kill them. Again, it must sooner or later have become obvious to raiders that it was a mistake to kill too many of the producers of wealth in the lands they found worth plundering. As an extension of these discoveries, it was learnt that it pays better when conquering a new home to allow the inhabitants of the country to remain as "hewers of wood and drawers of water" than to exterminate them or drive them out. Before these lessons had been mastered, victory only meant so much plunder to carry away; for raiders must often have found a strange land not worth occupying when the inhabitants who knew how to work it and were used to the climate were gone. If, however, they were allowed to stay and develop the resources of the country for their conquerors, it might be well worth the raiders' while to settle permanently and enjoy the fruit of their toil. Another step follows almost inevitably on this. The original inhabitants would probably begin by working with less energy than if they were working for their own sole benefit; and their masters, sooner or later perceiving this, would compel them to work a great deal harder than they had ever been used to work for themselves, releasing individual energy from the blighting discouragement of savage communism and organizing the work on a larger scale and with the greater forethought of those who know that their own backs will not be bowed by the strain of achievement. The outcome of this was a new state of things—civilization.

Professor Jastrow says: "Civilization may be described as the spark that ensues when opposing ethnic elements come into contact. Culture up to a certain grade may develop in any centre spontaneously, but a high order of civilization is always produced through the combination of heterogeneous ethnic elements." Joyce says: "The tendency of rude hunting tribes to rapid development when they adopt settled life has not yet been fully recognized. There is no finer training for the human faculties than the pursuit of hunting; it hardens the body, sharpens the observation, and engenders a perpetual readiness to meet sudden emergencies. Agriculture, on the other hand, while promoting the development of the useful arts to a certain pitch, is apt to result in stagnation. Students of African ethnography are well aware that nearly all the great kingdoms which have bloomed from time to time in Central Africa have had their origin in the descent of a nomadic tribe upon an agricultural, the former becoming sedentary and developing the arts which they received from the latter far beyond their previous limits." While Myres remarks that: "Nothing is commoner in the history of migratory peoples, than to find a very small leaven of energetic intruders ruling and organizing large native populations, without either learning their subjects' language or imposing their own till considerably later, if at all."

The Cro-Magnon culture showed to what artistic heights a race of hunters could attain, but showed also its limitations. In many parts of the world to-day one can see how far men of an agricultural race will advance and at what point they will stop if force from outside does not drive them onward.

The history of civilization shows what humanity

as a whole can achieve when the two types are combined. The initiative and intelligence of an aristocracy of soldiers and hunters on assuming the direction of forces which though latent would otherwise remain undeveloped in an unenterprising but submissive agricultural proletariat, produces the great civilized nation. Under the levelling influence of civilization the distinctive characteristics of the two types become merged. Then after the aristocracy, losing its virility, can no longer govern, and the masses, losing their submissiveness, can no longer be organized, civilization is no longer possible and a homogeneous herd of disorderly animals relapses towards simpler ways of living.

Two events in the long history of mankind outweigh in importance all others. One of the decisive steps in human development was made when the control and direction of the many were concentrated in the hands of the few. As soon as the leadership of the tribe was placed at the discretion of a chief, discipline and order ensured economy of effort and removed confusion of aims. Thenceforward the whole strength of a multitude of men could be concentrated upon a single object. The other important step was the invention of slavery. Man had the intelligence, energy and strength to accomplish feats that his indolence prevented him from attempting, especially where primitive communism stifled individual initiative. But a man who is too lazy to provide luxuries for himself will take the trouble to create them for another if he is compelled by fear of the lash and death. And a man who does not think a luxury worth the effort necessary to obtain it if he has to do the work himself, will consider it highly desirable if he can compel another to do the work for him. These two steps, which first placed the direction of effort in

the hands of the few, and then supplied the compulsion to effort for the many, carried man a great way towards perfecting his control over nature. Had man never learned how to apply coercion, and how to respond to it, his power of achievement would never have been guessed. We are not concerned with the questions which would be raised had we to consider whether the extension of man's power has been for his good. There can be little doubt, however, that the increased efficiency of the species has been bought at an enormous cost of individual suffering. When we contemplate this it is perhaps well to remember that neither step was a sudden one, neither was the invention of an individual or even consciously adopted. Both were natural growths, the outcome of conditions over which man had no control, yet by means of which he purchased a larger existence.

Civilization is, when analysed, found to be a system of slavery. It has its beginnings in struggle and conquest, which fill a land with a population of conquerors and conquered—masters and slaves. Very quickly the system has the population in its grip. On the one hand, it teaches the masters needs they would never have felt had they been unable to satisfy them except by their own exertions; and having provided them with a supply of energy with which to carry out their schemes, it lays upon them the burden of its constant direction and control. On the other hand, it teaches the slaves to work with a diligence and skill they would not have developed without compulsion; and out of the achievement of their labour it teaches them also new needs, among the chief of which are the necessity for guidance and restraint.

The physical results which the system produces in a land we shall consider later. These, in the form of

drainage and irrigation works, mines, roads, bridges, harbours, canals, and cities, are effects produced in man's environment, not in man himself. The biological results have a prior claim to consideration. Civilization introduced a new method of selection and determined survival by fresh standards of requirement, thus working profound changes in the species. For a long time the unit in the struggle for existence had for man been the community. The struggle for existence had been suppressed within the community, and the competitors for survival when times of stress came were whole communities. The community whose organization was best and whose members were richest in the quality we have discussed under the name of patriotism, had the best prospects. Within itself, as it needed all its members, exceptional powers in an individual did not mean increased chances of his survival, though very marked defects might mean elimination under the working of the criminal law. But at the beginning of civilization the individual method of selection again came into play. Individuals with a greater capacity for civilization had a greater chance of surviving and leaving children to carry on their qualities. Individuals incapable of civilization very quickly disappeared.

The history of the earlier civilizations shows an enormous mortality of slaves. The civilizations being based on slavery, there was a constant demand for slaves, and the supply was at first kept up by continued war, capture and purchase rather than by breeding. The ordinary treatment which was accorded to slaves was sufficient to account for a high death-rate, a low birth-rate, and a poor expectation of life; but beyond this we know how in different circumstances the least valuable elements in the slave population were most

quickly used up in mines and galleys and public works. Yet, notwithstanding the natural wastefulness of human nature, exceptionally endowed individuals, who became valuable to their owners, were taken care of and encouraged to marry, allowed to accumulate wealth, and enabled eventually to buy freedom. Late on in historic times, Columella, an authority on breeding domestic animals in the first century of the Roman Empire, expressly advocates encouraging marriage amongst the best slaves. Specially gifted slaves were the more likely to be preserved in the earliest times from the lowness of the general average against which they stood out in relief. The transference of a man from the slave to the so-called free population meant really that he had become so much a slave to the civilization he had helped to build that an individual owner was no longer necessary in his case. The converse could happen. A free man might lack the necessary energy and intelligence to live up to the standard which his particular civilization required. He was not allowed to relapse towards brutish ways. There were certain needs of existence and of decency which had to be met. He fell first into debt and through debt returned to slavery under an individual master. If he proved intractable and unteachable, he might fall lower still and be worked to death quickly in a State mine.

In all those regions throughout the world where civilizations came into being, the same forces can be seen working towards the same ends with surprisingly little difference in method. The natural versatility of man allowed them to be manifested in various ways. Personal slavery was usually the finishing school. According to Jewish law, Hebrew slaves had to be liberated after six or seven years of servitude, or at

the year of jubilee. It was to the interest of a noble Roman and his great pride to surround himself with freed-men who would do him credit. These instances, however, show only the continued working of the process in established civilizations. They were customs which had grown out of the necessities of more primitive conditions. The foundation of civilization had to be on a wide base. In some cases sections of the populace were educated in bulk, either by the imposition of taskmasters or by the levying of a tribute which they could only produce by organized labour. In others we find conquered nations broken up and distributed amongst the estates of their conquerors, where eventually the more adaptable became merged in the free population and the backward died off toiling in chains. Some educating races used to transplant whole nations to strange localities, as the Assyrians led away peoples into captivity. Comparatively recently Nurhachu, the Manchu conqueror, used to break the spirit of subject peoples by transferring a whole population to a distant and unfamiliar country, the inhabitants of mountainous country to the seashore, and coast tribes to districts far inland. The transplanting of whole populations, a process in later ages euphemistically called colonization, has played a great part in the development of a newly civilized proletariat throughout the world, from the little Greek States to the great Peruvian Empire.

A civilization is a system which grows out of the interaction of conquering and conquered races, and ends by holding both equally firmly in its grip. It is easy enough to see how the conquered were raised in intelligence, energy and culture by enslavement; but at first sight it is not so easy to see how the exercise of

brute force improved the conquerors, and eventually made them also slaves to a system. This was, however, the inevitable consequence of applying force to other men. In the first flush of unrestrained power came the development of luxury, and if this was not to be the cause of their speedy undoing it had to be tempered by the growth of refinement. If the enjoyment of power and its fruits were to be continued, virility must be maintained and intelligence developed to meet new needs which the improvement of the subject section of the populace threw upon their masters. The rulers had not only to keep in subjection their subjects, who would, if they could, destroy them preparatory to relapsing into savagery. No less had they to defend what they had built up, from other warlike races who would like to sweep them away and replace them. In proportion as a conquered land was developed and a subject population educated, a valuable property was being created and the envy of neighbours excited. In the early stages the evolution of the masses and the rulers went on to a very great extent independently. If the first conquerors who had laid the foundations of a civilization became exhausted or proved unequal to carrying on what they had begun, they could be exterminated and replaced by similar men without the education of the masses being greatly interrupted by the change of masters. On the contrary, it was likely to be greatly stimulated after the change has been accomplished. History abounds in instances of this. In the growth of a civilization the need for an adequate aristocracy is just as great as the need for an adequate labouring population, and the need is met by evolution enforced with all the brutality universal in natural methods.

In primitive aristocracies the rulers were the successors of the original conquerors who first supplied the direction and the *vis a tergo* to the subject populace. Instinct and often object lessons taught them the need of fostering the qualities which had won them their position, and it was doubtless this need which often made them anxious to keep on extending their conquests without their clearly knowing why. Thus we often find that the males had to qualify by severe ordeal before they could take their place among the warriors, and then had to prove their worth in war before they could marry. The continuance of their rule depended as much upon their standard of conduct towards one another and their capacity for discipline, shown in the submission of the individuals to the requirements of their caste, as upon their personal virility. When a conquest was made by a band of adventurers from a barren or overpopulated land, the leader, organizer and ultimate king could choose his associates largely on personal grounds; but in subsequent generations the maintenance of the original standard among the aristocracy proved the great difficulty of civilization. It was only with time that experience on this subject accumulated.

In breeding domestic animals at the present day, it is recognized that too much attention must not be paid to the individual parents. The finest animals are to be expected from the stocks which experience has shown most often produce them. Unconsciously this principle was applied in the early aristocracies. Special privileges came to be accorded to the families from which great men most frequently arose as generation succeeded generation, and precautions were taken to preserve the purity of the stock. Brilliant individuals

of obscure ancestry were regarded with suspicion, and their families no more than placed on probation. The customs in which these methods were enshrined vary considerably in externals; but all seem to show at the outset a recognition of the need for maintaining the efficiency of the governing caste and for keeping the government in their hands.

What follows is the growth in power of a system. Between the Masters and the Slaves there grew up what was called the free population. Into this were passed progressive individuals as they graduated from probationary slavery; but as the free population grew, as the system became established, civilization itself took the place of individual slave-owners on a larger scale. Slavery for large sections of the people was mitigated into serfdom. Then the restraints even of serfdom were abolished, and everyone in the State was free. But as the free population grew, that is to say, as civilization itself took over the ownership of the slaves, the powers of the masters were curtailed, and they became less and less arbitrary rulers and more and more mere directors and organizers. Finally, all men were not only 'free,' but all had a voice in the management of things: the triumph of civilization was complete and the slavery of all equalized.

This is no mere figure of speech. A Londoner of to-day is not the slave of an individual master who feeds him according to his caprice, makes him wear a livery, including a metal collar bearing his name and address, extorts work from him with the lash, and has a pecuniary interest in his well-being; but he is every bit as much a slave to the civilization that has grown up in England. If he decides one day that civilization weighs hard on him and that he will rebel and revert

to nature, he is soon made to realize his real position. He may not throw away his clothes and wander out into the country to sleep on the ground under the sky, feeding on roots, berries, and such birds and animals as he can catch. If he gives as his reason for wanting to do so that he has not the wherewithal to pay for clothing, food and lodging, he is told to work and obtain it. If he refuses to do this, civilization deals with him by means of prison or asylum: a masterless man cannot be tolerated by a system of slavery. He and his children are property at its disposal.

There is the converse of this illustration. African savages were taken to the new world and set to serve their apprenticeship to civilization; and before the civilization had them firmly in its grip they were emancipated. The majority reverted to their former state, and an astonished and embarrassed civilization discovered that no bribes of luxuries would make them consider the work and restraint necessary to conform to its standards worth while. The negroes are not without the versatility characteristic of the human species. An isolated negro brought up as a member of a European population may acquit himself well and prove as useful and able as most of his white fellow-slaves; but the great negro population of the tropics has,although bound up in superstitions and rigid tribal conventions of its own, not been brought, either by selection or the creation of an environment, within the sphere of civilization. As the much tried employer of labour in the tropics sums it up: "Their needs are few, they prefer laziness to luxury, and consequently they do not think hard and regular work worth while for any money." The need of money is civilization's whip.

The growth of a civilization is a time of severe trial, of jealousies, oppression and revolt; but all the while the levelling process is going on. There is fusion of races, fusion of languages and a struggle for existences between customs, gods and ideals until out of the chaos is evolved a nation with its inherent needs expressed in a religion and a common interest in its wealth and security. A civilization is an organism, a system or an environment built up by a section of mankind, but moulding the people who build it. Exactly how much of a man's character he owes to his physiological heredity and how much to the civilization into which he is born—the old question of nature or nurture—cannot be separated in the study of inheritance. It is as much a question of terms as whether the mollusc shapes the shell which it secretes around its soft body or the shell determines the form in which the animal must grow. The future of the mollusc was no doubt determined when it first began to make use of the salts in the water around it to build a shell; but the further development of the shell and the fish cannot be separated. They constitute the evolution of the shell-fish. It is, however, safer to recognize civilization as itself a biological phenomenon, considering it on its own merits, and to avoid trying to express it in terms of biological analogy. Man, as I have said, cannot exist alone, he must form communities. Where a civilization grows up it is the product of a peculiar population and a peculiar environment. The result is a complex of religion, law, science, art, language, literature, land modified by architecture and engineering, and a people born and educated in such an environment and inheriting the aptitudes of their various ancestors who went to modify this same environment. A civilization of natural growth in the

course of healthy development can assimilate and even may attract new elements from without as well as eliminate morbid products of its own growth, but the cohesion of the whole is so strong that it is usually assumed to be based upon a blood affinity. The people regard themselves as kindred and distinct from the rest of the world. We have broad divisions into Jews and Gentiles, Greeks and barbarians and so on. In less exclusive times we hear of Latin and Teutonic races, or even of English, German and Russian races. Although these ' races ' are mixed populations in which the anthropologist can recognize neither common descent nor sufficient structural uniformity to afford a basis for fine distinctions, the nation-complex in its broadest sense is nevertheless a very definite entity. The patriotism of the savage tribe now fits the civilized nation, and it fights as a unit against similar units. The struggle for existence is suppressed within, and, owing to the completeness of the control over nature and the ever-growing extent to which feeble individuals can be utilized and preserved, the population increases at an enormous rate. Periodically the territory becomes over-populated and the law of diminishing returns is felt. Either the struggle for existence must be allowed to return, or the nation must find some more land for its surplus population. This probably brings a conflict of interests with another nation equally civilized and in more or less the same state of congestion. While both were underpopulated it suited them better to exchange the surplus products of their different lands—in a word, to trade; but now they can spare nothing with which to buy, and yet need more. They fight, and the stronger civilization triumphs, material wealth and scientific efficiency, and the instinctive and self-sacrificing de-

votion of individuals to their State, that is to say, patriotism, being the main factors which determine the result.

A civilization reaches its height usually after it has defeated a dangerous rival. The moment comes in most civilizations when the whole people is 'free' but has not yet lost its discipline; and the rulers have lost their power but still retain their authority as the brains and directors of the State. There is a period of great energy and intellectual activity, the arts and sciences flourish, wealth increases, nothing seems impossible, and the nation believes that it is entering upon a great destiny. There is an age of Pericles, an Augustan age, an Elizabethan age, or some such period of florescence in the history of most civilizations. It is invariably followed by a reaction of disappointment; the realization that the glorious slavery is slavery still, and the whole population grows restive under the yoke. It is after the long, peaceful and glorious reign of a Solomon, when the aspirations of a nation have been realized, that the people complain of 'grievous service' and demand that their 'heavy yoke' be made lighter. Whilst under strong rulers like Saul and David they are still fighting their way from servitude to empire, their heart does not fail them. A rebellion against all forms of authority begins which ends in the destruction of the civilization, and the escape of the slaves towards an animal existence, pending the arrival of fresh masters to begin the cycle anew. Some individuals are very comfortable under civilization and dread any relaxation of its power, but this is not necessarily true of all. Civilization is not an ordinance for the good of mankind, but a condition of existence which may or may not be satisfactory, I am not here concerned to discuss

which. It comes into being and grows in efficiency only when the bulk of the people are controlled from without. As soon as the external guidance is removed and the control has to be supplied from within it must collapse. It will be easier to discuss why this should be so, and how it happens, after the growing stage of civilization has been examined in greater detail.

A certain philosopher once contended that the earth on which he stood must be the centre of the universe, because whichever way he looked the furthest stars were equidistant. His friends, on the other hand, contended that what his observations really established was not the central position of the earth, but the limited range of his telescope. In attempting to trace back civilization to its origin, it is advisable to watch very carefully against falling into a similar error. The error, however, is not likely to be repeated on a large scale. In most of those regions of the world where civilizations are believed to have originated, successive civilizations have been traced back till the neolithic period has been reached. Dr. Schliemann, starting to dig at Hissarlik, found nine successive cities, one beneath the other—that is to say, each built on the ruins of its predecessor except the deepest, which was upon bed rock. The term 'cities' may be misleading. What was reconstructed was not the periodic rebuilding of the same city by the same people after its accidental destruction, but successive settlements which grew up, decayed and perished: in fact successive civilizations.

The most recent was Roman, the two next were Hellenic. The city below these was—at least there seems little doubt about it now—Homer's Troy, and

belonged to the Mycenean[1] period. Three more 'cities' of stone and brick are distinguishable, and then comes the second or burnt city, belonging to the early Minoan civilization. Beneath on the rock came a primitive city of stone and mud.

Beneath the Mycenean and Minoan civilization in Greece and Asia Minor we reach the neolithic period. In Crete we find the Minoan civilization growing for more than five hundred years before the time of the burnt city, which was about 2500 B.C. Beneath the palace at Knossos in Crete we come down ultimately to neolithic remains, dated at about 3000 B.C. When the early civilization of Crete was growing it was in communication with Egypt, where the great civilization to which the pyramids belong was flourishing. At least two civilizations grew up and decayed in Egypt before this one, and before these there was a culture which also grew and decayed, though whether it was a civilization comparable with the later ones we cannot say; but beneath it we reach at last neolithic savagery, dating about 8000 or 10,000 B.C.

Though civilizations have succeeded one another,

[1] Scientific nomenclature is rather unfortunate. Geological formations which should be stated in terms of time or at least sequence are named from localities, and we hear of Cambrian or Devonian strata occurring in all parts of the world. Widespread races of men are likewise named after places, and we speak of Neanderthal and Cro-Magnon men; or after persons, and we talk of the Grimaldi race. And it is no better when we come to civilizations in the countries around the Ægean Sea. We speak of the Mycenean civilization, from one of the places where archæologists unearthed the remains of a particular age; or the Homeric age, which might mean the time of which the Homeric poems tell, or the age when they were written in their present form. And then we speak of the Minoan age, honouring Minos a mythical king; or the Cretan age, referring to the island where he lived, but whose coasts did not mark the limits of his power. Having decided to call a civilization Minoan, after king Minos, we divide a period of over a thousand years into Early, Middle and Late, and subdivide each into three periods. To what inferno does Minos commit an archæologist who crosses the Styx after talking about the third middle Minoan period?

civilization has spread during the ages until now it covers the greater part of the habitable world. Traced back, civilizations are found to have originated independently in isolated localities, and from these centres spread in circles which eventually intersected. The chief of these centres are the following, marked not as areas but by dots on the accompanying map. They are situated in Peru, in Central America, in China, in Northern India, on the Persian plateau, in Mesopotamia, in Asia Minor and in Egypt. They have these features

PRIMARY FOCI OF CIVILIZATION.

in common: they are fertile spots where living is easy, wealth readily produced, and a vegetative population liable to multiply fast, improving the comfortable arts of peace, and neglecting the bracing exercise of war. They are likewise spots, either backed or flanked by mountainous, desert, or prairie regions of great extent, where nomadic and pastoral peoples are reared in a harder school, and nursed by nature with a generosity so intermittent that they periodically become predatory. Time after time the periodic variations in the earth's climate have increased the stress of life throughout the

world, and launched the predatory peoples almost simultaneously upon the vegetative. The characteristic versatility of the human species has led to general adaptations to new conditions, and produced periodic civilizations which have decayed as their own machinery for bearing the strain was improved, and the severity of conditions themselves throughout the world relaxed again.

The origins of a civilization always take much the same form, whether the fertile district conquered is overrun like Peru by invaders coming from the colder south, or like Central America by a descent of tribes from the more strenuous north; whether Mongolian tribes from the steppes come down upon China, or Aryans swarm on to the Persian plateau and break into India; whether the Euphrates Valley is settled by mountaineers from the surrounding highlands or nomads from the Arabian deserts; or whether immigrants pour into Egypt from the north-east or from the south-east. A seat of government is established from which deputies are sent to the surrounding provinces, and the whole district is connected up by means of roads or its natural waterways with the centre of administration. The object of the invaders is to control labour and produce wealth; consequently a medium for sending precise orders, receiving definite reports, and keeping accurate accounts is an absolute necessity; and writing or some equivalent is speedily adopted or invented. The exact method evolved differs with time and place and people, from denting clay, scratching wax, writing or drawing on paper and parchment, to knotting cords. Sometimes the memory is prompted to ideas, sometimes to sounds; but in different hands very different methods prove effective. Judging by

the minute accounts kept and the long histories, poems and dramas handed down by the Peruvians, a collection of knotted cords answered their purpose as well as clay tablets served the Assyrians. In addition, the Incas used relief-maps, modelled to scale in clay, of the provinces they administered. When the chaos into which the Tartar Empire had degenerated was ended by the military genius of Hong Wou who drove the Tartars out, brought a distracted land together again under one rule, and, becoming the first monarch of the Ming dynasty, opened a fresh period of civilization in China, he is credited with giving every encouragement to literature, instituting public libraries and free education. It is significant that, like William the Conqueror, he had a survey made upon which to base taxation. But his successor, Yong Lo, went one better and found time, in spite of pressing military and administrative preoccupations, to organize the compilation, by scholars of his realm, of an encyclopædia consisting of eleven thousand volumes and containing over three hundred million words. This is rather an extreme case, but it is noteworthy how often the great soldiers who found a civilization are famous as patrons of literature. With the recording and systematizing of ideas comes the growth in knowledge whose practical applications so increase the control of the animal over its environment.

The beginnings of civilization are so remote in time, and arose in a world which has altered so much since, that it is useless to attempt very accurate definition. What I have aimed at in marking the map with dots is to indicate some of those places where several times successive invaders have built up a civilization from its foundations, finding on their arrival only the débris of

a former civilization the greater part of which they have swept out of their way. There is a striking difference to be noted when the history of a country like Spain is compared with that of such districts as Egypt or Central America. In Spain we find successive civilizations raised by the Carthaginians, Romans, Visigoths, Saracens, and Franks. But these peoples came treading on each other's heels. Each introduced a civilization which had advanced to a certain phase in another land, and each, turning out its immediate predecessor, carried on its own development. This is very different, in degree if not in kind, from the way in which at the places marked on the map, civilizations were evolved time after time which owed their growth, decay and peculiar characteristics to local conditions, rather than to the incoming people who built them up. It is worth noting that where conditions were alike the same result followed whether the actors belonged to the American, the yellow, or the white race. With the negroes of the typical region of Africa, civilization did not arise because the exciting causes were lacking. They had not the same temptation to move out of tropical luxuriance upon the milder south, though in the growth of the highly disciplined Zulu empire there were signs that this might some day have happened. They had not cold inclement steppes south of them like those which produced hordes of fierce nomads above the warm regions, in the northern hemisphere; and though the uplands of Central Africa were not forgotten, the main attraction for the Semites of the Arabian desert lay northwards. Consequently the negroes lacked the necessary impulse to civilization until the recent overcrowding of Europe made their uninviting if prolific forests and swamps worth an educating conqueror's

notice. The capacity of the African race for reacting in the same way as other races therefore remains at the present time an open question. Yet although we can recognize in different parts of the world the predisposing conditions and in such places find remains, both ancient and primitive, above the neolithic strata, only a hazy idea is possible as to where civilizations first began and whence in spite of periodic growth and dissolution they were spread by convection to other parts of the world. The outstanding point is that civilization is a phase in human evolution which began independently, owing to analogous conditions, from numerous centres. The respective civilizations of Central America, the Peruvian district, China and the Western group certainly had an independent origin, if a strangely similar development.

If precision is beyond attainment in regard to place, still less is it possible in regard to time. Apparently the influence of predatory invaders was being felt preparing the ground for the foundations of civilization in China, Northern India, and the valleys of the Nile and Euphrates at about the same time. Tracing the civilization in each of these regions backwards, we find indications of a start somewhere about 5000 B.C.; but besides allowing a margin of a thousand years for probable error, we think uneasily of the philosopher with the telescope. There must have been much made and destroyed before civilization was so firmly established that its records mark a decided change in life from neolithic savagery, and the length of the transition period is hard to estimate. In the New World we cannot trace either the Mayan or Peruvian civilizations back to their origins. A great empire which produced buildings of cyclopean masonry goes back in South America some thousand years before

the Christian era, but the production of its domesticated animals and plants requires a longer period of disciplined human effort than that. This empire fell and, after an interval of chaos, the Inca empire grew up on its ruins, extending eventually beyond the area it had covered. In the course of its expansion the Inca empire conquered and absorbed other civilizations. One of these, the kingdom of the Chimu, was in its decadence when the Incas conquered it, and had reached and passed a higher level of art than the Incas themselves ever attained. Its civilization seems necessarily to go back to a very remote antiquity.

From the strain of trying to pierce the obscurity which veils the beginnings of civilization, it is a relief to turn to the task, difficult in itself but easy in comparison, of tracing the spread of civilization in historic times, and following the methods of its rise and fall where they are in full sight.

CHAPTER VI

THE GROWTH AND SPREAD OF CIVILIZATION

Spread of civilization is brought about in a variety of ways.

Life under civilization.

Comparisons between civilizations must be made at corresponding stages in their respective cycles.

The needs of civilization are uniform.

Ancient Babylonian and Cretan civilizations, for example, met their difficulties much as does modern civilization in Europe.

Civilizations succeeded one another, but in no regular sequence of progressive improvement.

The most successful civilizations have shown tolerance and adaptability.

The crowning glories of different civilizations are very similar.

Civilization is intermittent:

(*a*) Civilizations succeed one another, forming long periods of civilization.

(*b*) These periods of civilization are separated by intervals of chaos.

Migrations from the breeding grounds in Arabia and Northern Asia have rejuvenated civilization periodically.

The reasons why civilizations decay are that—

(*a*) in the security they achieve their populations undergo physical deterioration.

(*b*) When their machinery begins to exhaust its original impetus it cannot produce motive power and direction from within.

THE early growth of civilization is reconstructed with much doubt and difficulty from disconnected fragments of information. Evidences are obtained from language, religious usages,

legend and folk-lore, archæological relics, documents such as letters, wills, leases, inventories of plunder and tribute, and written histories. The interpretation of these is an art in itself, but my object here is not to give a summary of history, but to study a phase of animal existence.

It was the interaction of man and his environment which gave rise to civilization at the various centres from which civilization spread; but we are on much surer ground in discussing the spread of civilization than in searching after its origins, though often in the spread we can watch processes closely resembling these origins. As a civilization grows it gets into touch with other distant civilizations, and the influence of new forces is felt on the peoples living between, especially those upon the trade routes along which communications pass. We see this happening right across Asia. Then there is a process of infection. Quiet peoples living on the fringe of a civilization are dazzled by its splendour, enter into trading relations and are entangled and brought, by new wants and increase of population, under the yoke of a system of living if not of an alien race, without knowing to what they are giving up their freedom. Fierce tribes try to prey on the neighbouring land whose wealth is increased by the toil and contrivance of others, and a civilization has to expand to bring them into the system of its servitude that they may contribute their share. As wealth increases within the artificial paradise, the frontiers have to be extended to carry the forces of nature, with which the struggle for existence must be fought, ever further from the centre whence it is organized and where its spoils are enjoyed. The versatility of man ensures the working of an infinity of methods of which a few instances must suffice.

Civilization spread northwards from India into Tibet and eastwards into Burmah. As the Chinese civilization grew in strength and extent it was felt more strongly than the Indian influence, and in the end supplanted it in Tibet. It also overflowed into Korea and Indo-China and encroached upon Burmah. Yet China, though the great educating influence of the Far East, did not force its civilization upon Japan. The Japanese islanders came and sought it. The early traditions of Japan deal with wars of conquest in which the Japanese, whoever they may have been, conquered the aborigines, driving them from south northwards, leaving them at last only the inhospitable northern island. Out of mixed swarms of invaders a more or less homogeneous and ordered nation was formed which, visiting the mainland, conquered Korea and came there in contact with Chinese civilization. The Japanese did not settle on the mainland, but imported its civilization, encouraging valuable foreigners, particularly Chinese scribes and scholars, to come to the islands by offering them grants of land and promising immunity from taxation. After the Chinese had for a time put a stop to Japanese interference with Korea by a crushing defeat and the destruction of their ships in 670 A.D., Japan became the recognized asylum for cultured refugees from China and Korea. In a somewhat similar manner Crete, Cyprus, and the Ægean region in the Minoan period, doubtless derived valuable lessons from Egypt and the East, though the character of their civilization was determined by the peculiarities of the islands and of the peoples, who were possibly invaders from the north.

After civilization had become established, and grown sufficiently strong to hold off barbarian interference

long enough for its effects to be felt through many generations, the surplus population of civilized lands began to migrate and form colonies, the colonists taking their civilization with them to graft upon other lands where their greater control over nature enabled them to subdue the inhabitants. Although slavery or at least a race of conquerors and a subject population are constant features in early civilizations, this is a different process from the origin of civilization by the interaction of predatory conquerors and the vegetative inhabitants of a fertile land. It was by this method of convection that civilization was spread along the Mediterranean by Greek and Phœnician colonists. The process is sometimes carried to extremes by peoples whose belief in their own civilization impels them to embark on a crusade. Darius wished to force the Persian civilization upon the Greeks. Alexander tried to thrust Greek civilization down the Asiatic throat with his spear-butt. The Mohammedan Arabs in the old world and the Spaniards in America both employed fire and sword to inflict their 'culture' upon races who were not strong enough to protect their own; and the same spirit seems to have inspired the recent German enterprise. Occasionally we see the rival claims of two distinct and incompatible 'cultures' decided by the sword, as in the days when Rome and Carthage fought for the Mediterranean.

In the growth of Rome from being a barbaric village of the Etruscan frontier to being the centre of administration of a homogeneous Italy, we have a very fair specimen of the evolution of a civilization by the mutual education of conquerors and conquered. We can actually watch how a system was built up which held both alike in an impartial grip. But the

Roman civilization learnt much from the older civilizations with which it came in contact in the course of its growth.

When the northern races, hustled by the stir of forces in Northern Asia, poured down upon the Roman Empire, they found the Mediterranean civilization in its decadence, and reduced it to chaos. The population of Europe, which had grown rank under relaxed control in pampered security, had to be pruned and weeded as well as revivified with new blood; but it was the stern discipline of the feudal period which laid the foundation of a new civilization. It is of peculiar interest for us to trace the process in English history. A country which, after the swift decay of its Roman civilization, when the legions were withdrawn, had received a succession of alien invaders and fallen into a state of confusion and disorder received, in the Normans, rulers who were a great contrast to its brutal, gross-feeding, heavy-drinking inhabitants. The Norman chivalry, with its temperate habits and the culture it brought with it, introduced valuable elements into English life; but it was the centralization of control, the wide gulf which separated the rulers from the ruled, and the iron firmness with which in consequence the education of the masses was conducted, which gave England her new start in civilization.

It has been almost the opposite in China, where time after time the fierce Huns, Tartars and Manchus, breaking in upon a civilization in its periods of decadence, have adopted its methods and supplied not a new culture, but the order in which the old could revive.

A curious case is that of the Nahua tribes, whose conquests did not overwhelm the Maya civilization, but pressed upon its flank, and from the models it supplied

built up the new Toltec civilization. With the arrival of further swarms of the Nahua peoples arose the Aztec empire, inferior though more vigorous than its decadent neighbour. Had the growth of the young Aztec empire been watched instead of suddenly arrested, it would have been interesting to have followed its further evolution. One is tempted to profitless speculation on what might have been the state of affairs to-day had the sudden attack of the Spaniards failed, and the civilizations of the new world, like those of China and Japan, succeeded in excluding Europeans long enough to adopt their weapons and learn from their enemies how to compete with them.

From this brief sketch of the origins and spread of civilizations it is necessary to turn to a consideration of life under civilization. Now civilizations, as I have said already, grow, mature and decay. After a civilization has fallen into decadence there comes a time when most of what it has achieved is destroyed. Its libraries are used as fuel, its mighty buildings, first falling out of repair, become ruins, and finally mere quarries from which a degenerate race plunder materials for constructing mean huts ; its art is forgotten, its language corrupted ; its roads overgrown, and its traditions lost. In course of time another civilization may rise upon the same site, utilizing perhaps what relics of its predecessor it can find. This process has been going on in various localities at intervals of a few hundred years for a period of some ten or twelve thousand years. Nothing shows more clearly that civilization is a phase in the history of the human species than the fact that the machinery and products of the latest civilizations are practically the same as those of the earliest. Different civilizations are much alike at the same stage of their growth or decay,

though separated by thousands of years in time and thousands of miles in space. Successive civilizations, even on the same ground, do not show progressive improvement on their predecessors; on the contrary, a later civilization often falls short of the standard reached in each stage by an earlier one. One can only infer that man in a certain phase of his occupancy of the earth has very definite needs, a very small range of method in supplying them, and very uniform and limited powers for carrying out these schemes.

It is not surprising that we should see in the disintegration of society at the present stage of the European civilization, and its branches in those regions to which they have been transplanted, a close parallel to a stage in the decadence of the Mediterranean civilization under the Roman Empire, and, at an earlier stage, in the decay of Greece. The modern order of things is mainly built of the same materials as the Roman Empire. It is not surprising that the same people, taking the débris of a former age, namely, the Roman law, the Christian religion, and the Greek culture, should have again produced a very similar structure. The main addition has been the fruits of Arabian science which developed in Spain, when, during the submergence of civilization in Europe, a Semitic civilization extended from the Atlantic along the north of Africa to India. If we want to institute comparisons with a view to ascertaining whether there has been progress in human affairs, we must compare different civilizations at the same stage; not ourselves with what we were five hundred years ago or with what Rome was in early days of the republic, or in the last death-throes of the Empire. The Athens of Pericles was nearer to us than this. "Indeed, as Arnold remarked, the portion of history

dealt with by Thucydides is only ancient in the sense that the events related happened a long while ago; in all other respects it is more modern than the history of our own countrymen in the Middle Ages" (Richard Crawley). Perhaps, however, to judge of human life under civilization, it is better to compare civilizations that are widely remote and only indirectly connected.

Seeing that civilization depends upon the development of agriculture ordered on a large scale, it is hardly surprising that it shows great uniformity. I have already referred to the dependence of civilization upon writing or some equivalent. No less pressing is the need for accurate measurement of time and definition of the seasons. In Egypt, Babylon, China, Central America, Peru, we find from the earliest times that astronomy was studied with a view to making a calendar and fixing dates. When the Spaniards reached Mexico they found that the Aztecs had a calendar more accurate than their own. Seeing how civilization depends upon forced labour, begun by conquest and enslavement and carried on by the needs it automatically creates, it is inevitable that the growth and regulation of society should follow everywhere very similar lines, that wealth should accumulate and industries arise, that capital should need yet control labour, and that labour should be jealous of capital and by attacking it bring ruin on itself, and cause the downfall of civilization. Men and horses being what they are, can we wonder that weapons and the main principles of organized warfare in corresponding stages of elaboration should be strikingly alike? The handling of infantry and cavalry, and the use of projectiles, little affected by the differences in their effective range, the guarding of communications and scouting, have left commanders of widely separated

ages and lands little scope for varied treatment. A general pressing an attack is seen in every age trying to decide whether he will attempt to break the enemy's centre or to turn his flank. Military commanders were faced by the problem of defending long frontiers thousands of years before the modern European armies confronted one another in entrenchments extending across the continent. The Romans defended Britain against attacks from the north by earthworks stretching right across the island, and longer ago than 200 B.C. the northern frontier of China was defended against barbarian invasion for sixteen hundred miles by the famous 'Great Wall.' In all ages it seems to have been easier to find good soldiers than good officers, and good officers for the lower commands than for the higher ones. The Chinese general Hansin declared that the more soldiers at his disposal the better results he could obtain ; but when the Emperor Kaotsou, anxious to conduct a campaign in person, asked his advice, the outspoken soldier warned him that, though he could command an army which did not exceed one hundred thousand men, he was not competent to handle a larger number. The monarch, by disregarding this warning, proved that the estimate of his ability was a correct one. In the entirely isolated civilization of South America we find the Incas, when they waged war in the tropical forests, systematically relieving their troops in the unhealthy area, at short intervals, with a rotation of drafts, so that they might be brought back to recuperate in the uplands.

If we examine the ordering of society in Babylon four thousand years ago, we find the same problems which face ourselves being met in the same way. To judge by leases which have come down to us, land tenure was much as it is now, and conveyancing in the hands of Babylonian

lawyers was managed much as by our own. In a great community, both agricultural and manufacturing, the points to be settled by litigation were endless, and had to be considered by skilled judges in the light of precedent. In the security of so great an industrial centre much petty trading was in the hands of women, and women held property independently of their husbands; and if unmarried, they could, in the shelter of a trade union under religious management, carry on business independent of anyone. For the workings of so complicated a society it was necessary to make education universal, and all children were taught to read and write. Public services, such as the post office, were efficiently run. The public safety was guarded by laws regulating medical practice and the building of dwellings. Even the persons and property of the slaves were humanely protected by law. In view of the complicated social system the law recognized different degrees of responsibility for crime or default in different classes, and different rights to compensation according to the status of the injured party. The civilization of Babylon about 2000 B.C. was different in detail from that of London nearly 2000 A.D., just as its material magnificence and stupendous engineering works were different; but it was not a bit less highly organized, although it perished utterly, and is separated from our own day by other civilizations and intervening periods of barbarism.

In Crete, at a period no less remote, the physical externals of a civilization long since extinguished, with equal completeness, were far more like ours of to-day than those of the civilization which immediately followed it. The people build elaborate houses, orientating them with a view to utilization of the sunny aspect. The dwellings were sometimes four storeys high, and

placed on the side of a hill so that both the top storey and the bottom had a door opening upon a street. The staircases, decoration, bathrooms, upstairs and downstairs water-closets with apparatus for flushing and traps for examining the drains, testify to a knowledge of sanitary science that was soon after lost and only fully recovered by another civilization nearly forty centuries later. The Hellenic and Roman civilizations, which in due course grew up after the Minoan civilization had perished, never equalled it in these respects. Only within the last century has the European civilization been able to compare with it in effective sanitation. Furthermore, Mr. and Mrs. Hawes point out that: "In contrast with mediæval Candia, and with prehistoric Troy, Tiryns, Mycenæ and Athens, the ancient capital of Crete had no wall of fortification. In this respect as in many others, Knossos was modern in spirit. Trusting throughout a long period of its history to the immunity of isolation, and later to an actual supremacy at sea, the Minoan capital, like London and Washington, preferred to run the risk of capture than to cramp its life within walls. And, like London and Washington, it was fired by enemies and rebuilt with greater splendour and with no serious interruption of its prosperity; until at last its own vitality was spent, and there could be no recovery from an attack in which the enemy within the gates combined with the old foe from the north to wreck the Minoan State." In dress the Cretans, their women at any rate, were strikingly like modern Europeans. Their long, many-flounced skirts, their high-collared, embroidered, puff-sleeved bodices, laced-in waists, gloves, and broad brimmed, fancifully trimmed hats, were all 'modern.' The flowing robes of the Greeks when the Hellenic civilization grew up after the

Minoan had fallen, appear to us ' antique ' in contrast. But these few points are enough to illustrate how, while civilizations succeeded each other, each had its own way of solving its problems, in fact was self-contained. The succession does not form a regular series of progressive development, and the struggle of human ingenuity in coping with its needs, shows a fluctuating, not ascending, curve of competence. As Professor Murray says : " We seem in ancient Greece to be moving in a region that is next door to savagery, and in the midst of it to have speech with men whom we might gladly accept as our leaders or advisors if they lived now." No civilization ever begins where its predecessor left off. It may find much that is of use to it in the débris of a predecessor at an early stage in its own growth, and be enabled by this advantage eventually to reach a higher level ; but this does not necessarily happen.

In extending their spheres of influence we find that the successful civilizations are those which try least to change the way of life of the peoples they gather into their fold, and those which show toleration for existing religions and institutions wherever they do not conflict with the general scheme. Cyrus handled all religions very tenderly. So did Kublai Khan. The Roman Empire was careful to disturb as little as possible the way of life of the countries it absorbed. The Peruvian empire seems to have been guided by the same principle, and to have allowed the primitive communism of village life to form the basis of the socialistic system its inspectors controlled under the rule of the Inca aristocracy. Even the Mohammedan conquerors were usually benign. In India, Akbar was broad-minded to a degree, and in Spain the Moors were easier masters and showed greater forbearance when dealing with other creeds than either

the Christian Visigoths who came before them or the Christian Franks who came after. As a civilization matures, its usages crystallize into a legal code, which is perfected by experiment until it expresses the needs of the community. Often a time comes when the code is straightened out and defined. The result is attributed later to the original genius of one man, a Lycurgus, a Hammurabi, or a Nezahualcoyotl. But these men are really enlightened compilers. Changes in law are failures unless they are made in recognition of newly recognized needs: as a means of compulsion to new habits they are ineffective. The whole American hemisphere testifies to this by showing the powerlessness of ready-made legal systems, however carefully drafted, to direct life in new communities whose needs have not yet emerged from their perplexities.

When a civilization has reached its height the form its crowning glories take shows little variety. There is the magnificent luxurious capital, and the beneficent ruler, who nearly always delights in gardens, menageries and libraries, and patronizes all forms of learning. The arts are encouraged, and developed by schools and academies whose aim is to attract all the talent in the known world. In China, Soutsong founded the Hanlin College about half-way through the eighth century, and about a century later Abderahman was fostering learning by very similar methods at Cordova. Where this phenomenon of florescence is to be observed there is, though difference in kind, owing to local conditions, little difference in the amount of elaboration or degree of effectiveness. It may be remarked in passing that fraud and embezzlement by government officials appears to be as old as civilization. What the Americans have found it necessary to invent the new word 'graft'

to describe, was rife in ancient Babylonia and Egypt, and stories three thousand years old of collusion between corrupt officials and inspectors, sent by reforming monarchs to check them, have a surprisingly ' modern ' ring. Civilization seems to reach and stop at much the same level whatever the age, the land, or the race. This is most strikingly shown when we consider the great civilizations of Central and South America. These developed independently of one another and of old-world influences. When discovered by the Spaniards they were found to be cut off from the knowledge of the old world by such differences as ignorance of the principles of the wheel and the arch, just as the ancient world is cut off from the modern by ignorance of steam and electric power, and explosives. Yet in the new world the institutions and achievements of civilization were much the same as in the old world, not lower and very little different. In Mexico the Spaniards found an empire with a monarch on a familiar old-world pattern, and in the Tlaxcalan State a confederacy of city States which at first it appeared correct to describe as a republic. The market at Tlaltelolco was finer than the most travelled of them had seen in the old world. Its daily attendance was estimated at over twenty thousand persons. In South America the skins of animals were placed in river beds to collect gold dust, just as a fleece was used to recover alluvial gold from the sands of Pactolus. In Peru the barren mountains when cut into terraces and irrigated by stone-lined conduits which tapped the very snows of the summits, supported a larger population, living in greater prosperity and security, than they have done since the civilization evolved on the spot was swept away by adventurers, who have put a mere travesty of European civilization in its place.

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In this review of civilization, so far as I have carried it, I have dealt briefly with three important questions: the rise of civilizations, the spread of civilization, and the conditions of life under civilization. I have now to consider a fourth, the intermittent character of civilization. This has two aspects: the succession of civilizations and the intermissions of civilization, which are distinct things. For instance, from the beginning of the seventh century until the present time China has been successively under the Tang, Sung, Tartar, Ming, and Manchu dynasties. With each of these a new civilization began, which grew and then declined until the country was in disorder from which the succeeding dynasty rescued it. Yet in spite of these ups and downs the general level of civilization in China for the last thirteen centuries has been a fairly high one. The periods of disorder could be shown as notches in a well-raised curve which do not come down to the base-line except possibly between the Tang and the Sung dynasties. But the four centuries preceding were times of chaos, when China was decadent, divided, and distracted by Tartar inroads.

Before these four centuries there came another long period, lasting through nearly fourteen centuries, during which China was at a fairly high though unequal level of civilization. During this time the Chow, Chin, and Han dynasties each grew and decayed. Prior to this was another period of decadence, when China was harassed by Huns and Tartars. Merging into this we find the decline of the Hsia dynasty coming at the end of a golden age whose history is uncertain and chronology vague. Behind this period comes another still more indefinite, but susceptible to interpretation. The 'black-haired race' are invaders conquering the land

where they are one day to build the Chinese empire, and waging tedious wars against 'mounted warriors,' 'ungovernable vermin' and similar nuisances which need extermination as well as disparagement.

In Europe as in China we find civilization cut into lengths. The present civilization of Europe rose out of the chaos which followed the fall of the Roman Empire. The Roman Empire unified in one system the civilization which had grown up around the Mediterranean, starting with Hellenic culture. Before the Hellenic came Minoan civilizations. It is the same in other parts of the world.

It will be seen that there are at least two things that must each be considered separately. Firstly, there is the alternation of long periods of civilization, with breaks of chaotic disorder coming between. Secondly, there is the succession of civilized systems which together make up the long civilized period.

The long periods last roughly about fifteen hundred years. According to Professor Petrie there have been eight of these periods in Europe, counting from the earliest dawn of civilization in Egypt, the duration of each period tending to be longer than its predecessor; and the intervals are marked by an inrush of barbarian races and an interlude of destruction and admixture of blood.[1] Of the biological explanation of this periodicity of civilization throughout the world it is impossible to speak with any certainty in the present state of our knowledge. I do not myself think that an admixture of the blood of different races can be held to account for everything. There are, however, certain phenomena which can be described, and certain

[1] Professor Petrie's little book, *The Revolutions of Civilization*, Harper, is a mine of information upon this subject.

facts which may be taken into consideration in interpreting them.

To north and south of the civilized belt, which crossed the northern lands of the Old World, were prolific areas whence its population was periodically reinforced by invasion. One might almost call them stock-pots of humanity which boiled over every few centuries, with occasional splutterings between. One of these was situated in the Arabian deserts. For brevity and completeness, Hogarth's description of Arabia as "in all ages a prime source of ethnic disturbance in West Asia" can hardly be improved. "The great southern peninsula is for the most part a highland steppe endowed with a singularly pure air and an uncontaminated soil. It breeds, consequently, a healthy population whose natality, compared to its death-rate, is unusually high; but since the peculiar conditions of its surface and climate preclude the development of its internal food-supply beyond a point long ago reached, the surplus population which rapidly accumulates within it is forced from time to time to seek its sustenance elsewhere. The difficulties of the roads to the outer world being what they are (not to speak of the certainty of opposition at the other end), the intending emigrants rarely set out in small bodies, but move restlessly within their own borders until they are grown to a horde, which famine and hostility at home compel at last to leave Arabia." Hordes of Semites have poured out, overrunning the neighbouring lands on four occasions within historic times. The last occasion was when the Mohammedan Arabs spread till they extended from the Atlantic to India and dominated the Mediterranean and the Near East. The preceding Semitic inundation was about thirteen centuries B.C.

and is known as the Aramæan. The one before that was about twelve centuries earlier, and is known as the Canaanite. There are evidences of yet another some twelve centuries earlier still. The effects which these waves of humanity produced are matters of history, but their cause is a problem for the naturalist, who has not yet succeeded in solving it. Fat years of exuberant breeding, lean years of succeeding famine, decadence in neighbouring races tempting a combined excursion as an alternative to domestic competition, are probably all factors; and there was probably some exciting cause which precipitated the event. "Hunger and avarice," according to Dr. Becker, speaking of the last Semitic outbreak, "not religion, are the impelling forces, but religion supplies the essential unity and the central power."

Across the northern continent from the shores of the Baltic to the eastern coast of Asia is another area occupied by prolific races which periodically overflow south and south-west. Here, however, the area is so large, the races involved so numerous and diverse, and the outlet so wide, that a periodicity, supposing it does exist, is less easy to trace than in the Arabian area. The terrestrial effects, for instance, of some remote siderial cycle need not of necessity affect all parts of the earth simultaneously, and even should they cause a famine, say, in north-eastern Asia at the same time as in the Arabian desert, the results would have to be transmitted and transmuted, and might not appear in a movement of the tribes on the Danube until years, possibly generations, later, when they would be difficult to correlate with a previous upheaval among the Arabs.

Notwithstanding the difficulties with which one is faced when one tries to be detailed and precise, there

do appear to be periodic crises in the history of mankind throughout the world which affect the course of civilization. The last occurred during the early centuries of the Christian era. Throughout the world, though not simultaneously in all parts of the world, races were restless and migrating. The old civilizations were in decay, and there was a period of demolition and a fresh start. The systems which fell then had made a somewhat similar ragged start in a similar period of nomadic unrest several centuries before.

If we narrow our attention from the great waves of civilization to the rise and fall of the little systems out of which they are piled up, we find firmer ground beneath our feet and can lay down some sound generalizations upon the reasons why civilizations decay. The first consideration is, of course, biological. In dealing with the rise of civilization, I have shown that there are many factors which tend to an improvement of the mixed races which build up the system. After the system has become firmly established there is a change, and in proportion to its own perfection its people tend to decay. The further a civilization gets ahead of the forces of its environment, the lower its death-rate falls, and the less severe is the elimination from the proletariat of those deficient in mind and body. Along with a progressive increase of morbid elements among the stock from which each successive generation is bred there goes on a reduction in the numbers of the best types. The individuals most vigorous in mind and body take the places where they are exposed to the greatest strain and risk. Whether their activities are military or industrial, whether they risk their lives on the land frontiers or on the sea, in mines or amidst machinery, the result is the same: they contribute

fewer to the next generation than the feebler types who lead easier lives, making lower stakes for lesser personal rewards. As the complexity of life under civilization increases, economic reasons reduce the rate of multiplication among the more intelligent and self-controlled stocks; while the lowest types not only lack the motives and ability for exercising a similar restraint, but are protected if not actively encouraged in their fecundity at the expense of the community at large. Consequently the more perfect does the organization of a people become, the more rapidly does its physical deterioration progress.

Side by side with the physical deterioration in a civilization there progresses a decay in its own machinery. The whole system depends upon control directed by intelligence. The more perfect does a civilization become, the more completely conquerors and conquered, masters and servants, are fused and levelled to a universal slavery under the system they have built up, the weaker becomes the control and the lower the intelligence which directs it. At the very time when both the complexity of problems and the extent of knowledge make unembarrassed control by experts necessary, the ultimate direction of affairs is in the hands of the deteriorated populace. The method of decay varies. Great despotisms are torn by military adventurers and split up into rival bands of brigands. Countries in which the form of decay is democratic are rent by political factions. The ultimate effect is the same. There is the disruption of the great system into a multiplicity of warring units out of which stable combinations can only be formed by force from outside.

The history of nations consists largely in tracing the process of decay which destroyed their civilization;

but the causes of decline have rarely been summed up more pithily than in the speech attributed to the Inca Rocca. Recalling to his countrymen their lost greatness, he explained the passing of the ancient empire of Peru as follows: "It is vice and sloth which consumed its grandeur, and reduced it almost to a vanishing point. Our policy was turned into a system of each man being his own master, leaving us to be satisfied with the thought that once we had a government." He is no less tersely to the point when he outlines the policy which he believes will promote a national revival. "You yourselves," he says, "instead of performing the duties of men, follow the path of animals, you have become so effeminate that you have forgotten what a sling or an arrow may be. . . . My first decree is that you apply yourselves to warlike exercises. This you must do, for it was by discipline and exercises that our ancestors became Lords of the World, as our Quipucamayocs tell us. Thus occupied, idleness will be driven away, you will become accustomed to obedience." The results of these reforms, that "you will recover what has been lost, and you will finally regain the glory that has departed," was a promise richly fulfilled in the glories of the Inca empire, which after centuries of chaos equalled if not surpassed those of the previous civilization.

Such is the cycle of civilization; but the position of the human species to-day, as a result of the recurrence of this cycle through a period of some ten or twelve thousand years, requires for its treatment a separate chapter.

CHAPTER VII

MAN AT THE PRESENT DAY

A new era opened with—

(*a*) the discovery of the New World,

(*b*) the perfecting of natural science.

The acquisition of new resources suspended the struggle for existence throughout the world until—

(*a*) consumption of surface wealth,

(*b*) raised standards of living,

(*c*) increased population,

restored the old conditions.

The tendency has been to rate the importance of the new continents too low, and of modern science too high.

Science works no direct biological changes in man.

Though man is unchanged his circumstances have altered; for methods which before were local and separate are now applied uniformly and continuously throughout the world.

Political

Conditions formerly observed to indicate decay of a local civilization are to-day prevalent throughout the world.

The force and intelligence necessary to direct civilization are dissipated in internal strife.

The constant feature is the desire of the individual to plunder the community.

Under all forms of government alike, competition for office extends and becomes unscrupulous.

Democratic selection fails to promote the survival of either able or honest administration.

Decentralized power is only co-ordinated and employed intelligently in moments of national danger, but the State is then found to be peculiarly vulnerable.

All these recognizable signs of decay are reappearing throughout the present civilization.

The question whether disintegration will be accelerated or arrested by the present crisis must be left open.

Religious

Religion, fundamentally necessary to national health, shows decay either by—

(*a*) over refinement,
(*b*) internal dissension,
(*c*) degradation into magic,
(*d*) scepticism.

Social

Individuals look to the State to relieve them from the need for effort by repressing individual initiative in all.

A uniform decadence seems to pervade the old world and the new.

Physical

Mankind to-day are overweighted by the civilization they have built.

For many reasons the stock may have degenerated.

The world civilization of to-day has all the signs which have marked decay in local civilizations of the past; but the immediate future cannot be foretold.

I SAID when first introducing the subject of civilization that the history of this phase of human existence falls naturally into two divisions. It appears to us to do so to-day; but the biologist of the future may think the division arbitrary and artificial. Still the discovery of the American continents by the peoples of the Old World makes a very distinct break in the history of mankind. The surplus population of Europe immediately destroyed the two great civilizations which they encountered in Central and South America, and killed off a great proportion of the inhabitants of the New World, no matter in what

state of culture they were found. The revelation of the New World to the Old brought the line of development along which one section of the human race was progressing to a sudden and final stop. For the other sections of the human race it meant relaxation of the pressure against which they were growing by the opening of new fields for expansion into which the surplus population could pour out. Together with this, the acquisition of a new source of food, which could be brought back to the congested continents, still further lessened the stress of life. This relaxation of pressure was in itself the opening of a new epoch; but the epoch was remarkable for other things. The discovery of great and unsuspected material resources of the earth was accompanied by an extension of knowledge of the properties of matter and of means for utilizing natural forces. The discovery of the new lands, of the methods of utilizing steam and electricity, of explosives, of methods of contriving machinery having great mechanical advantage, of biological principles capable of a variety of precise applications, make the present civilization markedly different from any of those that have preceded it.

To appreciate the effects of these great and comparatively sudden changes in the condition of the species, it is necessary to understand the state of the world in which they occurred. The three great empires of Assyria, the Hittites, and Egypt, which waxed and waned at the south-west corner of Asia, came after one of the outpourings from the Arabian desert, which profoundly affected neighbouring nations, even those which were not actually overrun. But meanwhile there had been another *Volkerwanderung* going on in Northern Asia which resulted in a Chinese civilization and an Indian

civilization. A south-westerly migration by another branch of the same race which broke into India, was divided by seas and mountains into two streams, and directed one upon Persia and the other into south-eastern Europe. The civilization of Semitic origin was swept away by first a Persian wave from east to west, and then a Grecian wave from west to east. After this came a period of comparative quiet from China to Spain, during which civilizations grew and decayed, the one with which we are most familiar being the Mediterranean civilization of the Roman Empire. When this civilization, like those which had preceded it, had passed into decay, it too had to suffer the onslaughts of another period of effervescence in Arabia and Northern Asia. Turks and Tartars, recoiling before the Chinese armies, moved south-west out of Asia and were met by the flood of Arabs from the southern desert. But the most noticeable feature of this period of migrations was the extent to which white races were forced west to the very limits of Europe. Indeed the whole of the Old World from the Atlantic to the Pacific seems to have been in a congested state.

So far as actual numbers went the population was doubtless much less than to-day. But when the wild races broke bounds and came into the civilized belt, they destroyed the more perfected sources of production. After the period of wandering and fighting, there came a time of settling, when the nations as we know them to-day were forming and redeveloping the resources of their lands. Production was slow, and populations uneasy and mutually suspicious; and there were constant wars in which various peoples tried to gain possession of the most fruitful provinces.

A war is not necessarily a biological event arising out

of the tension of civilizations or races. Some wars in the past have resembled the international polo matches of to-day. When war has been a sport fostered by rich patrons who have selected and financed teams to play the game under their own direction, it may have been a nuisance, but has been no part of the national life. Moreover, since the numbers engaged have usually been small and consisted mainly of cosmopolitan mercenaries, and the area of operations has been restricted, national life has been comparatively little affected. This is very different from the death-struggle between two populations whose competition has reached a critical stage. War then is part of the cosmic process : a manifestation of elemental forces at work.

The first book of Cæsar's Commentaries, abhorred of schoolboys, presents an example of these great biological forces in miniature. Cæsar at the outset of his Gallic campaigns found that the Helvetii had outgrown their mountain valleys and had decided to seek greater scope at the expense of weaker western neighbours. In a fierce battle he corrected the excess of their population and drove them back whence they had come, only to find that he must now relieve them of the pressure of the Germans further east who were themselves coming west for similar reasons.

This biological principle underlies many, though not all, of the dynastic struggles which raged through the Middle Ages until recent times. It was the struggle for existence exacerbated by variations in the standard of existence demanded, carried on as the struggle for existence is when human fecundity makes it acute, not between individuals but between communities. During the centuries through which the struggle went on the smaller communities were stamped out or merged into

the more successful, and there came the day of large highly organized nations which, though often at war, maintained areas of quiet where a new culture grew up. A feature in the growing civilization of Europe was the development of mathematical and chemical science. This was largely built out of the débris of the Moorish civilization, itself largely indebted to the Greek, and at first met with much opposition on religious grounds. Indeed it appeared for a time doubtful whether the growing European civilization could accommodate both a Semitic philosophic tradition and a Semitic scientific method. When, however, in the fourteenth century opposing tides of Mongols and Semities met in Western Asia and interrupted the trade-routes between Europe and the Far East, mathematical science sought a way by sea round the world which it had proved to be a sphere, and in so doing discovered new continents. Here chemical science stepped in, with explosives and tempered steel, and made the conquest of fresh land easy. From this moment the future of the new civilization was assured, for the tension was relieved in Europe, though the full effects were not experienced until later. Meanwhile in Asia the Turks and Tartars make history complicated; but as things settled down after the devastating marches of Genghis Khan, Ogatai and Timur, civilization rose to a high level, particularly in China under the Mings and in India under the Mogul emperors. Further east, Japan, which had defeated Kublai Khan's attempt to bring it within the Chinese system, built up yet another civilization.

The opening up of the new continent came at a time when the tension in the Old World was distressingly high. Nations of mixed population were sufficiently

demarcated by difference in language, culture and religion to form compact entities. Increase in population, exhaustion of land and fear of rivals, tended to offer each nation in turn the choice between severe competition, amounting to a struggle for existence within, or in expansion, a conflict with neighbours equivalent to a struggle for existence between nations. There were wars going on and wars inevitable for land, for trade, and for markets. The East placidly waited for European traders who fought for priority of access and then strove to exercise control. When the new lands were discovered the tension was relieved. The native populations of Australia and South Africa were not able to offer vigorous resistance, and the resistance of the American races was overcome with comparative ease. There was no time wasted in attempting to adjust trading relations between the European and American civilization as there had been between the European and Asiatic civilization. The American civilizations were obliterated by descendants of the men who had stamped out the Moorish civilization in Spain, and whose fanaticism destroyed what did not excite their rapacity. The ground was effectively cleared.

The relief was first felt in the western countries of Europe, namely Portugal, Spain, England and France, by the outlet afforded for their superfluous population. But the enormous wealth brought into Europe eased the tension throughout the whole of the Old World. The amount of plunder the surface wealth of the new lands provided, made armed conflicts between the old countries a sheer waste of time; and whilst the population was catching up with the newly discovered resources of the earth by rapid breeding and raising the standard of living, wars became fewer and less severe, until for a

period there was almost a world-peace. It was during this lull in the struggle for existence that modern physical science perfected its control over nature and produced modern industrialism. Human society based itself upon commercialism as it had done in the palmy days of previous civilized periods.

Then humanity began to readjust itself to the altered situation. The new lands had been parcelled out, after a certain amount of fighting, between the nations of Western Europe, which thought that in their estates they saw security for their posterity. But before long the surface wealth had been stripped from the new lands, and these lands had a population upon them, born on the land, rooted in the land, and faced by the problem of developing the resources of the land. It became evident that as time went on the new lands would require more and more of what they produced for themselves, would be able to export less and less food, and become willing to admit in ever fewer numbers the surplus population from the Old World. Meanwhile, although the East had benefited more or less directly by the wealth of the New World, it had not experienced the same relief. The Manchus had descended into China, and the Russians were pushing east across Siberia. Becoming discontented with the equilibrium in which their dense populations lived, the Asiatics, too, began to demand the right of entry to the new lands. The population of Africa might not have helped to complicate the problem had not the first emigrants from Europe introduced negroes as slaves into the New World where numbers of them became feral, and the danger from their irrepressible fecundity was recognized too late.

The total population of the world soon threatened to catch up with the resources of the new feeding-

grounds which had so recently been thrown open. In some localities certain races showed a tendency to abate the rate of their multiplication; but what comfort could be derived from this was counterbalanced by the raised standard of living and the general uneasiness which the rich and under-populated new continents caused in the Old World by their example of undisciplined prodigality. The time of plenty and the advance of medical science had reduced the stress of life and lowered the death-rate, and with it the quality of the population. A time came when the growing numbers in the new continents began to raise political and social problems, and the formulæ, with which American doctrinaires had been beating the air, made no impression upon these realities, while, simultaneously, the tension in the Old World was becoming scarcely bearable. It became evident that in a congested world the struggle for existence, that is to say, war between nations, must soon begin again. The nations of Eastern Europe which had gained least relief from the discovery of the New World began to devote their increased wealth to arming themselves for the evil day that they saw coming.

In Eastern Europe there are two large sections of mankind calling themselves respectively Teutonic and Slav which are conscious of their distinct identity in language, religion, ideals and even a supposed uniformity in their composite populations. It is convenient to adopt the popular habit of referring to the two entities as 'races,' as long as too precise a biological significance is not implied in the word 'race.' These races both set to work to consolidate and take steps to secure their future, showing the elemental preference for eating rather than being eaten. The Slav race first tried to expand towards the south-west and was checked. After

keeping the whole south of Asia in nervous suspense for several years it tried to force its way out to the south-east but was driven back from the warm seaboard there by Japan. After a brief rest to recuperate it turned west again. Meanwhile the Teutonic race, which was fully alive to the danger east of it, was itself feeling a dire need for expansion. Accordingly it pressed on with preparations for the inevitable struggle. It might hold back its Eastern rival and force it to divert its course into another channel, but the only way in which it could hope to be successful was itself to break loose to the westward. Opposed to it here were the nations which had already been relieved towards the west. Their strength had been increased by the new wealth, but diminished by emigration of much of the best stock; and what is left is an incalculable quantity. Between the fear on the east and the hope on the west the Teutonic race is now struggling for its future, conducting the struggle, as it had prepared for it, with an appallingly biological indifference to the restraints of 'humanity.' The very methods it is employing have done much to increase its peril by stimulating offshoots of its opponents in other parts of the world in their instinctive rally to the assistance of those countries from which they are derived and with whose people they consider themselves allied by common blood and ideals; while the rich and defenceless nations of the New World are filled with apprehension lest, in a new exploitation by European peoples, they should be treated in the same spirit as their ancestors dealt the aborigines whom they have dispossessed. What the outcome of the present conflict will be none can say, and it is useless attempting to predict the conflicts that will follow when this is settled. It can only be said with certainty that the period of rest which the throwing

open of empty lands gave to a congested world is at an end throughout the habitable globe.

There are earlier parallels on a smaller scale for the relief of a congested land by the discharge of its surplus population upon new territory; but the relief of what we call the Old Hemisphere at the expense of the New was an event of a magnitude and importance that are usually undervalued. The development of a system of natural science, that is to say, perception of the properties of matter, and skill in applying such knowledge to utilitarian and æsthetic ends, is also a recurrent phenomenon, appearing at a regular phase in each cycle of civilization. The tendency has been to overestimate the extent and importance of this factor in the present civilization. The difference between the present period of civilization and the preceding ones is mainly one in extent, and its distinctive characteristic a world-wide universality and uniformity. The very versatility of man which so suddenly modifies the conditions under which he lives militates against changes in himself. There is evidence that animal types remain unchanged for long periods of time when the conditions under which they live do not alter. During the period of civilization the conditions of existence and the type of man appear in main essentials to have remained constant within recurring cycles.

There is an immense difference between a long-range, flat-trajectory, magazine rifle and a spear; but there is no such corresponding difference between the trained and disciplined soldiers of modern Europe and of the Roman Empire. The modern infantry man who uses his rifle mechanically, with no thought of its scientific evolution, is not a better man, indeed he is probably very little different in any way, from the legionary with

his pilum. The mass of mankind uses machinery without understanding its principles; and increased complexity in the machinery used involves no biological advance in the labourer who uses it. The man who starts and stops a complicated machine by manipulating a switch is not necessarily more intelligent than the man who starts and stops a simpler one by the same means. Similarly a man six feet high, standing on the top of a twenty-storey building, is no greater in his own stature than a man six feet high who stood on the ground immediately beneath him before the edifice was built. Where, as in literature and sculpture, the human mind to-day can gain no great advantage from new mechanical aids to execution, its finest modern achievements, so far from surpassing those of former epochs, are often markedly inferior to the classical masterpieces. The main effect of the recent scientific perfection has been in producing uniformity. The increased rapidity of transport and transmission of ideas to which appliances actuated by steam and electricity have conduced, though partly neutralized by the wider area over which civilization is spread, have had the effect of producing uniformity rather than change.

The effect upon mankind of achieving rapid results with labour-saving machinery and explosives has, so far as we can tell, been very slight. The roads, mines, canals, bridges and buildings of past civilizations achieved their purpose without such aids being used in their construction. The lack of machinery in times past was balanced by an abundance of cheap slave labour, and production kept pace with demand. Where stability can be compared, to-day has not always an advantage over yesterday. Modern investors make much of the fact that a rubber plantation cannot be expected

to return a yield in much less than ten years; but the capitalists of antiquity were undismayed by the knowledge that their vast olive plantations could not give them a return in less than eighteen years. Even printing with movable type has probably made less change by the dissemination of information than the ingenuity exercised in elaborating the mechanism would seem to warrant. We know with what rapidity an army of trained slave copyists could produce a manuscript edition of a new book in the days of the Roman Empire. An official version of the news of the day (*acta diurna*) was written up where the public could read it, and the wealthy classes sent their slaves to make private copies for them, so that in principle the daily newspaper is older than printing—older, indeed, than the present civilization. At a corresponding phase in great civilizations we find public funds devoted to education, and an ability to read and write almost universal. It was so in ancient Babylon as in Imperial Rome. Aristophanes could not find anyone in Athens unable to read and write, and seems to regard the ignorant literary of his day as a nuisance. The effect of printing has been rather to cheapen expression and make the ignorance of mankind as a whole articulate, than to raise the intellectual standard of the species. The masterpieces of the human mind are now within the means of the poorest, but the main output of the printing press is designed for commercial reasons to amuse and flatter the masses without educating them. To appreciate this one has only to consider the picture postcards, the cheap prints and reprints of books, and the type of newspaper, comic or pretentious, which have the largest sale.

But though there is no physical or mental change in the human animal traceable to the civilization phase

of his occupation of the globe, there has been a general extension of his more successful methods. These, as they become uniform and universal, instead of, as they were formerly, diverse and local, must affect his destiny profoundly. We have seen how in the pre-civilization period man's versatility led to his acquiring a greater power of coping with his environment than was necessary merely to hold his own against nature. We have seen how during the civilization period man first enlarged the capacity of the territory at his disposal by cultivation and engineering, and then with the encouragement this gave to his multiplication filled up the extra space he had gained. We have later seen how man has recently opened up new continents and increased his knowledge of how to deal with the material resources of the earth, so that he was again able to make a fresh start with space and resources in advance of his needs. Now at last we see that the process cannot be repeated indefinitely, and that man is to be faced at no distant day with a need for establishing and maintaining an equilibrium with nature, since he will no longer have powers or resources in excess of his needs. Several times this situation has been observed before locally. Can we from past happenings on a small scale form any idea of what is in store for an overpopulated world in which, thanks to the rapidity of transport and quick transference of ideas, the operation of civilized methods will be uniform ?

The present civilization is on a large scale and has of late years been moving fast. One cannot fail to be struck by the resemblance between this ' progress ' and the process of decay which, from its invariable recurrence in the cycle of previous civilizations, appears to be the normal method of decline. So far as we can subdivide

national life into separate functions a subtle deterioration appears common to all. Man as an individual cannot resist natural forces except as a component or parasitic member of a community. Consequently the individualistic instinct, no matter how important in itself, must be sufficiently subordinated to the social instinct to ensure the safety of the State. Yet everywhere to-day we see individualism undermining organization.

The political history of nations is always interesting and deserving of careful study; but its value is very greatly dependent upon the point of view. National institutions and forms of government when regarded as forces which direct human development can teach much. But it is a great mistake to consider them only as agents influencing the population actively from without. The political history of a people is no less instructive when investigated with a view to ascertaining its biological history by a series of recognizable indications. A well-balanced sense of proportion is necessary for giving the two views their proper value. The history of an individual man can be, indeed should be, studied in the same way. On the one hand, his acts can be examined as the causes which raised him to fortune or led him to his undoing. On the other hand, they can be regarded as evidences of his temperament and ability, of the varying conditions of his health and of the succeeding phases of his youth, maturity, and senility.

Viewing politics and outward forms of government only as symbols of fundamental biological facts, they are, from the precision with which they are defined, extremely useful for comparison and important as indicators. Civilization is essentially a system of control

and direction, developing with economy the full potential of a population and its environment. The system started with a conquering race cracking the whip over the head of a subject population, but has grown until all men alike are slaves of the system. When, at recurring periods in the past, this point has been reached, the system has weakened because it could not provide the necessary control from within.

So long as a despotic form of government retains its health and vigour it is probably the most effective. Regarding the State simply as a machine, absolutism is probably the most satisfactory agent for driving it, for the continuity and economy with which the nation can be controlled makes it possible to attain very great efficiency. Both industrial and military power can be developed to the highest pitch. But its very perfection is apt to be inhuman and repellent. No matter how great its success may be at first, there comes sooner or later a time when the directing power becomes decentralized and dissipated.

The basic weakness in civilization lies in the deeply rooted predatory instinct in human nature. Once civilization is established there is spoil for plunderers from within as well as from without. No section of the people can resist the temptation to exploit civilization when such an enterprise appears safe. The original conquerors, who form the first directors or aristocracy, are, to begin with, in the happy position of having got what everyone wants. However, they are never content to devote their whole energies to increasing the value of their property and protecting it from outside spoliation. Invariably they fight over the spoil among themselves. Our own Wars of the Roses, the civil wars in Rome, the fratricidal strife of Akbar's descendants,

the conflict between the Taira and Minamoto clans in Japan, and the contest which was raging between Atahualpa and Huasco when the Spaniards reached Peru, are among the more familiar instances of how civilizations can be weakened by avarice overcoming the discretion of a ruling caste distinct from the mass of the people. At a later stage in the cycle of a civilization the distinction between rulers and ruled is less marked. The slavery of all under the system they have together built up is equalized and every man cherishes hopes of plunder.

The course of the great majority of civilizations, whose history we know well enough for comparison, has run from hereditary monarchy to aristocracy, and then to a time when the populace set about arranging the government for their own profit. Popular methods of plundering at first took the form of faction strife. Some factions started from the outset upon a straightforward career of brigandage; others strove to prey upon the bulk of the nation by fighting for some man whom they chose as their candidate for the throne, or purple, or caliphate, or shogunate, or presidency, or whatever the symbol of the flesh-hook might be. It is often a fine point for the historian to decide whether the leaders who, when crowned with victory, were to distribute rewards to those who had placed them on a throne, or the section of the populace who speculated in their success, were really the dupes. When, however, we see a nation without a royal house or an aristocracy capable of imposing uniform rule on the whole by force, but instead a quick succession of rulers being set up and deposed as fortune favours one or other of a number of greedy factions, we recognize a definite stage in decay, and know that, unless a central and

independent control over the populace is shortly supplied from without, disruption of the system is imminent.

The peculiarities of the Greek character and environment led, however, to their elaborating another method by which a civilization could devour its own vitals.

In the classical example we see politicians greedy for the spoils of office, demoralizing the proletariat with stolen money. Greek taste and Greek levity determine the nature of the bribe, and the iniquity of the transaction is disguised by its elegance. But the money is found by the misappropriation of the funds that allied cities of the Delian league subscribe towards preparation for war with Persia. The method employed is to spend this money upon fine buildings and statues with which Athens is adorned like a "light and vain woman decking herself with ill-gotten jewels," and to make law and politics well paid pastimes for any Athenian with a distaste for work. The result is disaster. Thanks to the example of Athens, 'democracy' has become extremely popular with the nations of Western Europe, and from them promises to extend over the whole world. When the control and guidance necessary to civilization are dependent upon popular choice, the qualities which place men in the position of rulers are not a capacity for enforcing their wills and overcoming opposition, but ingenuity in flattering and cajoling the people whose voices can reward their plausibility. The way in which a system decays when the democratic form prevails, is identical in principle with the course of events in the old-fashioned empire. At first rulers from among the aristocratic caste are chosen by the popular vote. In this early stage the results obtained by the democratic method are often good. The voters all have to be men of some consequence in the

State—men who can make their opinions felt by force if necessary, and who will only withdraw their opposition when convinced that they are in a hopeless minority. The rulers chosen are men who by birth, education and tradition are fitted for their responsibilities; and from their fortunate position are not to be tempted by small bribes or frightened by risk of small losses. Even the rewards of office lie more in privilege than in perquisites. By these means a government with power and intelligence is obtained. The electorate chooses the man in whom it has the most confidence, and trusts the government in his hands. Hence the chief qualifications looked for in a candidate are wisdom and probity.

In Rousseau's opinion: "S'il y avait un peuple de dieux il se gouvernerait démocratiquement," but "Un gouvernement si parfait ne convient pas à des hommes."

In the earlier stages of democratic evolution candidates are put forward by large and organized sections of the population; much as in the struggles within a kingdom, princes are chosen to head large factions, or great soldiers lead whole provinces in revolt. In each case the man has a following because he represents large interests in the State. What those interests require is not necessarily the man with the most powerful individuality. Rival parties in a democratic State may withdraw candidates of strong individuality and compromise by placing the government in the hands of a nonentity as feeble as chance could possibly bring to an hereditary throne. Yet in the main the requirements of the State are deliberately met. But the republican form of government is peculiarly liable to rapid decay. There is no possibility of restricting the extension of its scope owing to the bribes unscrupulous candidates will offer in return for election. Eventually every

citizen, no matter how ignorant and devoid of force, has a vote, and any candidate, no matter how lacking in intelligence and capacity, is eligible for election. There is now possibility of direct appeal by individuals to the mob. The condition of a democracy when it has sunk to this level is parallel with that of a monarchy which has become so weak that numbers of adventurers keep cropping up and starting a predatory career, each with a mere handful of banditti. The failure of democratic government when pushed to its logical conclusion has been seen time after time, and the reasons for its failure are obvious.

Civilization needs intelligent, no less than independent, power for its control. Hardly sufficient stress has, perhaps, been laid in the preceding pages upon the influence which individuals with exceptional powers of mind or will can exert upon the destiny of a race or the conflict between races. It is hard to see how Athens would have risen from being a mere town to the position of the chief power in the Mediterranean without the alternate leading and driving of Themistocles during the critical years. Nor can we imagine what Japan would have become without Yoritomo. The whole course of South American history was set by the guiding personality of the great Pachacuti. And we cannot even guess what would have been the fate of Eastern Europe and the whole of Asia, one might almost say the whole world, if Jenghis Khan had died in infancy. Indeed the advance of the masses of mankind has been dependent throughout upon exceptional individuals who have been leaders or teachers.

At a recent meeting of the British Association the president put one aspect of this very forcibly. "Annul the work of a few hundreds—I might almost say scores

—of men and on what plane of civilization should we be? We should not have advanced beyond the mediæval stage without printing, chemistry, steam, electricity, or surgery worthy the name. . . . To improve by subordinate invention, to discover details missed, even to apply knowledge never before applied, all these things need genius in some degree, and are far beyond the powers of the average man of our race; but the true pioneer, the man whose penetration creates a new world, as did that of Newton and of Pasteur, is inconceivably rare. But for a few thousands of such men, we should perhaps be in the Palæolithic era, knowing neither metals, writing, arithmetic, weaving, nor pottery."

The guidance of the community must be entrusted to a few hands, and any population which has not lost its vitality can produce some men capable of giving it a lead. But the benefit which the community can derive from the exceptionally endowed individual is dependent upon his freedom of action. The ruler set up by popular vote is powerless to exercise control. He owes his position to a bargain with those who elected him, and the moment they are dissatisfied with him he must go. As in the earlier stages of democratic development the most frequent bribes offered by candidates to electors are extensions of the franchise; before long every citizen has a vote. But with suffrage universal all voters have not the same value, and a man elected by a popular majority may find himself faced by the choice between disappointing his supporters, who will at once discard him, or displeasing a powerful minority, who, if pushed far enough, will readjust values in the State by a revolution. It is hardly possible for a man with intelligence and integrity to rule in an

advanced democracy. He is prevented from exercising foresight in accordance with his own enlightened judgment, because he holds office in virtue of his readiness to give immediate effect to the will of the people. The will of the people varies remarkably little in all democracies as they develop. In the earlier stages it may have been that the man they believe to be wisest shall solve the problems of the State; but later, as the problems grow harder to understand, it is that they shall be accorded immediate enjoyment of the nation's wealth regardless of provision for the future. Accordingly the capital on which the nation's production depends is squandered in order to save money for luxuries, and the armaments which guarantee its safety are not maintained in adequate strength on the ground of expense. Competition in how far different statesmen will go in meeting these demands, ends in awarding the prize of office to the greatest rascal; and as democracies gain in experience they hold their rulers in greater and greater contempt. There is a Turkish proverb to the effect that nations in decay continue producing men of ability after they fail to produce men of character. The decay must have gone far indeed when men of character are no longer produced. The observation embodied in the proverb is probably that in certain conditions men can neither lead nor advise by direct methods and plain speech. Even a single-minded patriot must gain the nation's ends by intrigue, flattery, compromise and cajolery. These are degrading instruments, and if there are honest men among those habitually using them they do not appear heroic, indeed it is not easy to distinguish them from the rogues.

The more democratic a democracy becomes the

shorter grow the terms of office, and the more rapidly are succeeding rulers set up and cast down. The corresponding forms in the decay of the older type of civilization were slower and more merciful. The prospective plunderer of the State who took the sword was likely to perish by the sword, whether he were prince or low-born brigand; but it was by the defection of his followers, many of whom in spite of their disappointment would remain faithful and perish with him. The hero of democracy who gains by the vote is likely to perish by the hands or missiles of the voters, and find at the end that his former supporters are his bitterest assailants. The cause is the same: the inability of the man who is trying to fulfil promises to compete with the man who is as yet only making them.

Of course the path of democratic development is not a smooth one or free from the possibilities of reaction. Just when the masses believe that, having thrown down everyone whose head and shoulders rose above the crowd, they have the control of their fate in their own hands, they sometimes find that they are really in the hands of an oligarchy of party leaders who are disposing of them in a wholly arbitrary manner. The heads of great political organizations sometimes remind one in their conduct of dishonest pugilists who, after arranging the division of the purse, the gate, and the picture rights more or less amicably in the dressing-room, defraud the public with a 'faked fight.' The amount of realism achieved in the fight is very variable locally, and sometimes, particularly of late in South America, the principals have cynically refused to enter the ring at all, and any of the assembled spectators who have been foolish enough to demand their money back at the doors have been dispersed by the police.

But at this stage it is not only the politicians who are preying on the State. The princely pretenders to thrones, military adventurers, and demagogues have their counterpart in business organizations. Combinations of capitalists, the individuals varying in numbers and wealth, are formed which, so far from identifying the prosperity of their enterprise with the security of the State, may deliberately turn their resources to plundering their fellow-citizens. If the government which should control these 'combines' is being carried on by men who have neither names which they wish to hand on untarnished nor a competence which places them above threats or temptation, the State is defenceless. Not only is it possible to sway the voters, but the 'combine' can usually buy what it wants, if not from the government at least from the men who carry weight in it. The confusion only becomes worse if some of these organizations are so successful that at length their interests and power actually become almost co-extensive with those of the State, and an idealistic reformer tends rather to disturb than to restore national stability by opposing their illicit acts.

So much for the inability of democracy as of any other form of decaying civilization to supply the force for the necessary control from within. Things are no better when we consider the question of intelligence and honesty. When the leaders are chosen from the privileged classes, the height at which they have lived, even though it does not imply intellectual superiority, has given them a wider outlook upon life and facilitated the forming of broader views than are possible to the man whose main preoccupation has hitherto been to get enough to eat. The man who is born to a high probability of ruling almost inevitably comes into power

after some preparation for the office he is to hold. But in an advanced democracy the people have ceased to regard the offices of government as posts which require to be filled with the most competent men for the benefit of the whole State; and have come instead to regard them as prizes for individual effort which all competitors should be given an equal chance of winning. It is further regarded as quite natural that those who obtain them should do all in their power to increase their value. Since the difference between the spoils of government and the rewards of industry is vastly in favour of the former, the cleverest as well as the most ambitious men may be diverted from other trades into politics. This has its advantages. The more advanced a civilization becomes the more complex and technical are the problems it has to solve, and consequently the greater need has it for the man of genius. The country, it is then argued, cannot afford to waste natural talent or special training in any individual no matter to what station of society he belongs. Unfortunately the humbler aspirants for lucrative posts are likely, as Carlyle laments, to expend so much time and energy in attaining offices of State that they have none left with which to qualify for holding them. On the other hand, the task of discovering men of trained ability is not one that can be safely left to the masses. Profound knowledge of a difficult subject is no passport to popularity with the uninstructed multitude; and if, when experts differ on highly technical problems, the largest and most ignorant section of the people are allowed to decide between them, this means leaving matters of the utmost importance to chance. Having no knowledge of the real nature of the difficulties, the court of final appeal solves them upon irrelevant

considerations. The more completely the rulers represent the people the more is the direction of civilization transferred from the intellect to the animal appetites.

In proportion as the rulers represent a force from within the people instead of an independent force superior to the people, do we find their careers becoming short and precarious. Even a man who served his city so well as Pericles, is fined and degraded by the Athenians, though indeed he had amends made to him later, and further had the good fortune to die at a moment when he was popular. A later stage is seen in Cleon who perished miserably, whether through incompetence for the position he had gained, or because he dared not offend his own soldiers by refusing to give orders they were pleased to obey, is still disputed. It is noteworthy that the lower the origin of a democratic hero and the more spectacular his service to democracy, the more likely he seems to be killed, as were the leaders of the French Revolution, by the populace whose darling he has been. It is interesting to note how the men of genius whom Athens produced in her democratic days nearly all were hounded to death or died in exile. It is therefore as one might expect. When the original masters and slaves have become merged in one uniform slavery to the system they have built up, individual rulers tend to disappear, the controlling force is vested in the mass of the people and by them dissipated until the civilization disintegrates. The only influence which is active in maintaining discipline and organization in a highly developed civilization is fear of powerful neighbours. History abounds with instances of national revival in face of a danger threatening from without. Rome, torn by bitter political strife, suddenly setting her house in order at the approach of the Cimbri, and

after the danger has been met reverting to civil wars and proscriptions, is one familiar instance. Fear of an attack from without alone keeps the social instinct above the individualistic in a community; and as a civilization is perfected and extended this fear becomes lost.

Though danger may regenerate a decaying nation, the activities of competing politicians make a democratic people peculiarly vulnerable to attack from without, since the nation's peril is the professional politician's opportunity. The importance of demagogues must not be exaggerated. Like fungi on a dunghill they are the consequence, not the cause of the mass of corruption. Yet they are a very real source of weakness to the organism on which they prey.

A feature in the competition between needy and rapacious politicians is a tendency to impute low motives to one another. No statesman can advise the nation to adopt measures for its safety or advantage without his political opponents declaring that his advice is prompted by self-interest, and dismissing the conditions which evoked it as fictitious. We are indebted for an excellent specimen of this to Thucydides. When the great fleet of warships and transports had already sailed from Athens and was on its way to attack Syracuse, the Sicilian demagogue Athenagoras professed to regard the information regarding it with incredulity, deriding the Athenian bogey as an invention of a plotting aristocracy. He denounced those who were urging their countrymen to make provision for the defence of the city: "I wonder less at their audacity than at their folly, if they flatter themselves that we do not see through them. The fact is that they have their private reasons to be afraid, and wish to throw the city into consterna-

tion to have their own terrors cast into the shade by the public alarm. In short, this is what these reports are worth; they do not arise of themselves, but are concocted by men who are always causing agitation here in Sicily."—And so on at considerable length.—"Nor is this the first time that I see these persons, when they cannot resort to deeds, trying by such stories and by others even more abominable to frighten your people and get into their hands the government: it is what I see always." This is naturally followed by the offer: "However, I will try, if you will support me, to let nothing of this happen in our time, by gaining you, the many, and by chastising the authors of such machinations, not merely when they are caught in the act—a difficult feat to accomplish—but also for what they have the wish though not the power to do; as it is necessary to punish an enemy not only for what he does, but also beforehand for what he intends to do, if the first to relax precautions would not be also the first to suffer." [1] Yet Athenagoras was not a conscious humorist. He really was, doubtless, much more afraid of being forestalled in his precautions for his own well-being by his fellow-citizens than by the Athenian army which so soon after was besieging Syracuse. Athenagoras is a familiar type, and we know that he often fears his rival within the city more than the enemy without, even when the danger is an admitted fact.

The military adventurer is particularly dreaded by the democratic politician because he is of necessity what the demagogue frequently is not: a man of real force and ability, and his power while it lasts is more secure. He may be a great scoundrel, but he is rarely a fool, for soldiers' support is gained by deeds not words.

[1] Crawley's translation.

A Claudius may be made emperor by a whim of pretorians whether he likes it or not, but he does not receive their favours if he asks for them.

When a civilization is far gone in decay it frequently before disruption falls into the hands of its own army and thereby sometimes gains a new lease of life. As the political life within becomes more corrupt, the frontiers are more frequently assailed and its armies collect behind them and gain in efficiency. The army is usually the least degenerate part of the population for obvious reasons. The men have to be of good physique. For fear of the enemy before them, they have to observe strict discipline and maintain highly technical skill. Soldiers are inured to hardship, familiar with danger, and severe upon incompetence. They are obliged to live at a distance from the dissolute capital. Man for man the soldiers are better than the masses, and the officers than the politicians; and when they realize this, especially if they believe, rightly or wrongly, that the chief awards of their valour are reaped by corrupt rulers and a venal populace, they are liable to discover their collective power and use it. A Jehu, a Cæsar or a Napoleon 'saves the State.' Democratic government with or without an effete monarchy gives place to a military despotism very frequently in the cycles of history.

For this reason decaying nations often hasten their fate by becoming afraid of their own most successful soldiers, especially when they have had repeated experience of being 'saved' by them. Corruption and jealousy at Carthage neutralized the military genius of Hannibal and led to the ultimate triumph of Rome. Jealousy and corruption in the court at Peking brought about the fall of Tingbi, the only Chinese general

in whom Nurhachu recognized that he had met his match, and so led to the ultimate triumph of the Manchus.

The process of decay when once it has set in goes on regardless of names and terms. The essentials of civilization are very little affected by forms monarchical or republican, military or democratic. When the offices of government are prizes to be bestowed by the people on their favourites, their caprice makes order impossible by insecurity of rulers. The man who contrives that power shall be given him by the acclamation of either mob or army, is always in danger of being outdone in the same way by another of his own kind.

At the present day different countries throughout the world exhibit different forms of decay; but the decay is everywhere to be seen. In some places, both in the New World and in the Old, the factions of disintegrating civilization strive after the manner of brigands; in other regions the more individualistic democratic method is to be observed. In Mexico and the United States they have recently been exhibited side by side. On the whole the democratic method seems more characteristic of the civilization of to-day and appears to be gaining ground in all directions. In type it tends more to resemble the Athenian than the Roman model. The Roman civilization long retained the services of experts who could give to the wildest demands of the populace some semblance of ordered legal form; but the inconsequent freaks of the Greek popular assembly, even though there was a slave element of society not represented in it, are very near to the chaos with which progress towards universal suffrage threatens democracies of to-day. It is important to remember this, for the career of Athenian democracy

was not only disastrous but brief. The multiplication of so-called republics, the demand for democratic forms, which seems most violent in the most aristocratically governed populations, and the labour unrest which is threatening the stability of every government, all seem to point to an acceleration in the confusion of social organization.

Whether the war in which many nations are now involved will end, as some expect, in making democracy prevalent throughout the world, or, as others believe, in a revival of concentration of power on a military basis, only time can show. For whether the world is entering upon a period of stricter or slacker control is a question altogether distinct from that as to which group of the nations now embroiled will emerge victorious. The world undoubtedly suffered in general *morale* from the example of peoples in the New World as well as from the relief of pressure and new sources of supplies. The present war marks an approaching equilibrium between population and the resources of the world, and it may possibly lead to a reconsideration throughout the world of the rights and duties of individuals. Men may have to regulate their conduct more with regard to one another than was thought necessary in the days when both space and wealth appeared unlimited. Before now citizens have learnt discipline in their own armies during a narrow escape from being conquered by a foreign force. Western Europe is to-day endeavouring to repeat the process so often seen before of turning the tables upon an enemy by adopting his methods. If the discipline and material efficiency with which Germany has lately astonished the world are successfully copied by the allied nations opposed to her, it is to be hoped that the

cynical bad faith and ruthless brutality which have disgraced without advancing the German conduct of the war will not be acquired as part of the lesson. And always it should be remembered that after an achievement requiring great national efforts and sacrifices, there is liable to be a reaction.

Self-control is an ideal after which many nations have striven, but which none has been able to realize. Already it appears as though mankind was coming to view civilization with disfavour. During a trial of several thousand years it has proved only a cycle of recurring disappointments owing to its inevitable failure along one of two diverging lines of development. Either the machinery of civilization becomes too perfect and the control too complete, in which case man becomes dehumanized as we see in Germany; or else man is so exalted over the machine that a multitude of inexpert or wanton hands reduces it to wreckage, as we see in those States where freedom leads to chaos. In either alternative civilization is unstable and foredoomed. Yet experience has shown that it requires great courage and energy to break free from an established servitude no matter how hateful. The attempt involves grave risks, and even if successful may lead only into a trackless wilderness full of perils where the flesh-pots of Egypt are soon regretted.

From politics we turn naturally to religion. Indeed, religion should possibly have been given precedence of politics, for though 'hunger and avarice' are the impelling forces which drive races to conquest and construction, "religion supplies the essential unity and central power."

Religion grew out of the constant mystification of early members of the human group before the phenomena of nature, and is a deep-rooted instinct in man.

But the religious capacity of men of divers races and in different phases of particular civilizations varies to an extraordinary degree. Most of their gods are gods of a family or a sect, a nation, a class or a trade. The God of the average man is either a family deity, like the god of Abraham, of Isaac, and of Jacob, or a national fetish like that worshipped by a German Kaiser, or a fantastic creature who, ignoring social and national distinctions, will rule, if not this world, at least the world to come in the exclusive interests of a sect in one of the London suburbs. The men whose god is universal, and has a purpose in which the whole universe as we know it is only a detail of a scheme infinitely beyond the scope of the human mind, are like men of genius, beings peculiar to no one race or civilization, and far beyond the comprehension of the ordinary man of any place or period.

The foundations of civilization have always depended upon religious organization; but with the continued growth of civilization the national religion decays. Sometimes it becomes debased, and the priesthood is known to be mercenary and insincere; sometimes the primitive tribal lore is refined, until it is raised to a height of spirituality which puzzles and repels the masses. In either case it ceases to be a system of national conservation and defence, the common policy which must be successful, because it embodies the revealed will of the patron deity. It becomes instead a carcass for every crow to pick at. The tendency of groups of individuals to dissent from the religious life of the nation comes with the increasing individualism at a definite stage of national growth. Individuals, instead of striving to reform what they disapprove of in the State religion, detach themselves to constitute

little societies whose object is to gain personal and exclusive advantages from their supposed superior knowledge of how to manipulate the supernatural.

In every great civilization, religion is the foundation of the system, and we find intimate relations between the government and the hierarchy. If at the head of the State there is one man, say an emperor, he is, if not actually deified, at least regarded as the 'Lord's anointed.' When a nation is on the upgrade the head of the State generally aims at being the recognized head of the Church. The demand that divine honours should be paid to such men as Alexander and the Roman emperors during the most critical years of their lives, was due not to personal vanity, but to far-sighted statesmanship. In every great civilization, provided it lasts long enough, we see in the multiplication of religious nonconformists a symptom of its decay. We know the process best in detail in Imperial Rome, in ancient Greece, and in the decadent Caliphate. In each case we see that while on the one hand an impatience of learning and authority together with individualistic pride carries the larger and more ignorant part of the nonconformists in the direction of gross superstition, on the other hand the growth of learning leads the more intellectual to scepticism by discrediting the supernatural basis of the cult. The attempts to apply a knowledge of the supernatural to purposes of selfish gain, degrade religion into magic and witchcraft, and minister to the depravity of the lower sections of the populace; while the inability to accept the mystical explanations of the phenomena open to investigation by intellectual processes alienates the thinkers. Between the defection of the most ignorant and unsocial in the one direction and the most learned and influential in the other, religion is weakened until

the nation is without the stimulus of ritual and the restraint of doctrine on which its national life was dependent. All endeavours to substitute a reasoned system of ethics for the sanctions of divine ordinance have hitherto been failures. Even in China this is so. The ethical philosophy of Confucius, great as is its hold upon the people, leaves a void which religion or some form of superstition is called upon to fill. Indeed abstract principles demand too much of mankind in the mass, and ethical considerations without a religious basis are at present as ineffectual in the spiritual sphere as, when without fixed points to act from, they are in the political. This may be because it is so very difficult to discover what really is ethically or politically sound except by prolonged experiment. Results so obtained are apt to take the form of creeds or constitutions embodying truths so hard-won that, even when the external forms are outworn, the cautious regard their revision with misgiving.

Much that styles itself intellectual agnosticism has no right to the title intellectual, being indeed rather a manifestation of ignorance. The repudiation of the national religion is, in these cases, an attempt to gain freedom from moral restraints by those who often cannot free themselves from gross superstition of the spirit-rapping and table-turning order.

Religions, forms of ritual, and popular philosophies are among the most durable and adaptable of human products. Civilizations pilfer them from the débris of their predecessors for modification and adoption more often than any other relics. Pythagoras, Zoroaster, Confucius and Lao-tsze, Gautama and Vard-hamana all lived about the fifth and sixth centuries B.C., but are identified with trends of religious and philo-

sophic thought active to-day. What is fundamental in these cults probably did not orginate even so recently as their supposed founders. Confucius certainly did not regard himself as an innovator. He declared that in teaching he was only passing on the lessons of antiquity. Their significance lies in the spirit in which they are applied at any given moment in a people's history, for according to the phase of national health almost any religion seems to serve equally well as a basis for common patriotism, or as a back door by which individuals may escape from their duties to the State.

Over and over again, when a civilization has attained its object and its conquest over the problem of its environment has been achieved, do we see a wave of petulant disappointment threaten to submerge the people. In how many old civilizations has not one manifestation of this been an outbreak of religious asceticism : a weary decision to throw away all that is worth having in life, to avoid the trouble of preserving it, to strive no more because prizes are hard to gain and bring no satisfaction, to contribute nothing to the maintenance of the State, but to live by the bounty of those who continue to hold society together ? Mendicant asceticism takes many forms, and is the product of no particular religion. We find it wearing many labels, Buddhism, Fakirism, stoicism, cynicism, monasticism, which often do not rightly belong to it. It is one sign of an exhausted vitality which comes at a time when people have ceased to pray to the God of their fathers "Thy kingdom come," but hope to get malicious satisfaction, if not personal profit, from a God who puts down the mighty from their seats, and exalts the humble and meek ; who fills the hungry with good things, and sends the rich empty away, not with

any reference to their respective merits, or the cause of their condition, but from a capricious delight in turning the tables. In such an age, tragedy, whether contrived by Euripides for the theatre, or by Fate in the Stock Exchange and divorce court, delights the public. Catastrophes overwhelming the great are hugely pleasing to those who have abandoned the struggle with this world, whether or not they hope to fare any better themselves in another.

We can only regard the decline of national religions, manifested to-day on the one hand in the extension of scientific agnosticism, and on the other in individualistic superstition, which degrades the deity to the rank of a domestic fetish or an embodiment of class prejudice (even where it falls short of such fantastic manifestations as the Christian science cult), as evidences of decay in the foundations of civilization.

Closely allied with the religious degradation everywhere apparent is the deterioration of the social life. The increase of vice, the disinclination for family responsibilities, the shirking of personal effort, and the determination to repress individuals who would raise the standard of endeavour were free competition allowed, are symptomatic of declining vitality of the stock. The levelling down of industry, the crowding of the rural population into cities, the impatience of direction, the clamour for cheap food, and the general demand that the State shall not only afford its citizens protection in which to attend to their own business, but provide them with free luxuries and amusements, are all indications of decay to be seen throughout the world to-day in much the same forms as they appeared in decadent Rome. The trades-unionism and rural depopulation, the determination not merely to live but to live well

upon the capital of the State, were remarkably similar then to what they are now. In the agrarian laws and the attempts to replace a vanished rural population by settling time-expired legionaries on the land, we see a lost civilization struggling vainly with the problems which confront the world to-day; and in the legislation of Diocletian, which endeavoured to fix prices, wages, and conditions of labour, we are struck by the familiarity of the disease and of the remedy which only made it worse.

This personal laziness and cowardice which shirks competition, with a true intuition of its own impaired stamina, tries to find shelter in the 'State.' The State, it is argued, limits competition between its members lest, if carried too far, internal competition should render it less able as a whole to compete with other States. Why therefore should not the State abolish competition altogether and ensure the ease and safety of all? This is not always called 'socialism,' but it is the constant feature in decaying civilization, and is no doubt, in a measure, a throw-back to primitive communism, by that large element in the population complex which would never have attained civilization but for a capacity for discipline gained in association with more vigorous races. 'Socialism' to the philanthropic reformer means ingenious schemes for regulating the production and distribution of wealth. One cannot but feel sympathy with the aims of such a statesman as Wang Anshih in spite of the disastrous effects of his legislation on China. But what the masses want when they profess themselves socialists is, according to their own explanation, ease without effort, and the abasement of all of whom they are jealous. The 'labour unrest,' which seems to pervade the whole of our civilization, seems incurable.

The peoples who colonized the New World took their

civilization with them and have 'kept their phase.' The further development of their civilization has followed a course continuous with that of Europe from the point at which it branched off. It has kept on parallel lines, and has solved no problems and produced no novelties that are not accounted for by the under-populated state of a rich territory and the lack of ballast due to escape from traditional restraints. In the United States the population is still so far within the capacity of the land that the civilization rattles loose like a pea in a bottle. It is not moulded to the containing shape like a fluid filling a vessel. The undeveloped social organism may indeed be compared to a car without an engine rushing down a steep hill. Contrasted with old-world civilizations which resemble motor cars running by their own power along an undulating road, its progress appears very rapid. But both the pace and direction depend on the nature of the ground traversed, not on itself. When by increase of population it reaches the bottom of the slope and its impetus is exhausted, it will be faced with the problem of generating its own motive power, and have to consider the question of a goal and the smoothest road by which it can be reached. For the old imported civilization is decaying, here as throughout the world, the land is filling up and a new population, produced by the fusion of many strange elements, will soon have to evolve a new system to meet new conditions. Disintegration threatens the present civilization in the New World as in the Old.[1]

[1] Thoughtful Americans have no illusions about the state of their country. Such paragraphs as the following (from the *San Francisco Bulletin*, April 1916) appear even in the popular press:

ARE OUR GREAT MIGRATIONS PAST?

The United States has had a very long immigration period. The greatest human migration that has ever taken place in the world has been that of

So far I have been dealing with the machinery which human activity has evolved to deal with its environment —in a word, civilization. The suggestion I have offered, that the present civilization appears to be in danger of the same destruction by its own products that has overtaken its predecessors, raises the important question of the biological condition of the species.

Some years ago Galton expressed his fear that "our race is overweighted" by the civilization it has built up. "The number of the races of mankind that have been entirely destroyed under the pressure of the requirements of an incoming civilization, reads us a terrible lesson. Probably in no former period of the world has the destruction of the races of any animal whatever been effected over such wide areas and with

Europeans into this country. But the free immigration period, like the free land period, is bound to pass. By law or by natural causes immigration must flow more slowly and evenly. Until this comes about our national life will not be normal. That it has not been normal in the past is shown by the history of our industries—iron, coal, cotton, wool, and silk, to take the great examples. The typical American industry pays comparatively low wages to its unskilled labor; builds machinery as nearly automatic as it can be made, and is controlled with consummate ability by a very few men at the top. This is not a healthy condition. The labor problem will not begin to be solved until the abilities of the masses of the unskilled, now a drug on the market, are called democratically into productive use. To this end there could be no better tonic than a scarcity of unskilled labor, such as would naturally come from a restriction of immigration.

Restriction will not be as great a hardship for the immigrant as some of us have feared. This country's day as the unique land of refuge is over. Dr. Jeremiah Jenks, a well-known student of this subject, pointed out recently that Canada and South America are not only climatically well adapted to the northern and southern streams of immigration, but at present offer the immigrant a better economic chance than the United States can. With us economic opportunities are no longer to be had for the asking. Nearly all the natural wealth of the country is now marked "private," and about all the ordinary immigrant can hope for is wages. Fewer and fewer of the newcomers can leap from peanut stand proprietor to department store owner, or from farmhand to landlord. Ours is a hard civilization, even for the robust native.

On the whole, no measure of preparedness is more urgent than a humanely restrictive immigration bill.

such startling rapidity as in the case of savage man. In the North American continent, in the West Indian islands, in the Cape of Good Hope, in Australia, New Zealand and Van Diemen's Land, the human denizens of vast regions have been entirely swept away in the short space of three centuries, less by the pressure of a stronger race than through the influence of a civilization they were incapable of supporting. And we, too, the foremost labourers in creating this civilization, are beginning to show ourselves incapable of keeping pace with our own work. The needs of centralization, communication and culture, call for more brains and mental stamina than the average of our race possess. We are in crying want for a greater fund of ability in all stations of life; for neither the classes of statesmen, philosophers, artisans, nor labourers are up to the modern complexity of their several professions. An extended civilization like ours comprises more interests than the ordinary statesmen or philosophers of our present race are capable of dealing with, and it exacts more intelligent work than our ordinary artisans and labourers are capable of performing." No one can deny the truth of this to-day, but it is hard to say whether the vital inadequacy ought to be associated with active deterioration.

This is a very difficult problem. It is similar to that which confronts a medical man when he is asked whether crime or folly in the conduct of a given individual is to be explained by a weakening of the mind, and if so, whether the mental derangement is due to permanent alteration in the tissues of the brain. It is often hard to say. Here, however, we note certain things. With exuberant multiplication comes fusion of races, and the best stocks within a population lose

their purity and become merged in the rest. It has been suggested that this accounts for the decline of the ancient Greeks. But this is not all. The physical degeneration which must follow the relaxation of competition for life is undeniable and everywhere apparent, and the alarm it is causing appears in talk of impracticable schemes popularly and incorrectly termed 'eugenics.' Formerly a decayed civilization had a high death-rate and a low birth-rate, and barbarian invaders eventually killed much of the old stock. Moreover, there were frequent wars. The effect of warfare upon the biological standard of the human race as a whole is by no means simple or obvious. A great country which is constantly engaged in little wars is working for the elimination of the most vital stocks from its population, particularly if its armies are recruited by voluntary enlistment. Even when a nation engages in a war of such magnitude that practically all the males of one generation are subjected to the ordeal of battle, it does not, under modern conditions, promote the survival of the fittest in an individual sense. The weakest soldiers in an army will succumb first to exhaustion and disease; but exceptional strength, courage, and intelligence do not give an individual a better chance of escaping projectiles than is shared by the average man. It is the 'fittest' army which survives.

To state this principle very simply one may say that the best marksman in an army is as likely to be shot in battle as the worst, and he may as likely as not be killed by the worst, not by the best, marksman on the opposite side. But an army whose average marksmanship is appreciably superior to that of the army against it will, other things being equal, destroy its opponents, and with less loss to itself in proportion as its superiority

becomes effective at long range. The army which maintains the highest average in its ranks outmarches, outlasts and outfights the inferior army, and at the end of the struggle contains the largest proportion, if not actual number, of survivors. And among nations it is the nation which can keep on putting the best armies in the field, and at the same time bear the complicated strain of war at home, which suffers less in a conflict than rival nations. But until recently this method of selection has been, comparatively speaking, in abeyance, and we cannot be sure what price we have paid for the respite.

With the opening up of the New World the preservation and multiplication of inferior stock has not been interfered with for a considerable time. The first colonization of the new continents drained Western Europe of much of its most vigorous blood, but the general standard in the New World has been lowered later by free admission of the dregs of humanity, both from Europe and the Levant. The opportunity for the segregation of an improved stock was missed. While it can be maintained that, of the white population, the best type in the northern continent is a very fine one, the degeneracy of the lower strata, more particularly in some parts of South America, must be seen to be believed.

A constant feature of old and decaying civilizations is the way in which the extremely sheltered life allows weak types to flourish, and suppressed elements to reappear in a mixed population. This is seen in one aspect in the debased multitudes which seem actually to thrive in squalid slums of great cities where they defeat every attempt to improve their condition. But besides this there is another aspect. Individuals of

'down-trodden' races, which are failures as nations in the severe competition of national life, frequently prove most successful as parasites upon the moribund State. They are able to enjoy a civilization they could not have created unless associated with stronger elements, and show in positions of luxury and responsibility the inherent disabilities of their race. The bureaucracy of Imperial Rome was infested with corrupt Greek and Oriental officials, just as Jews and Irish demoralize the political life of the United States to-day. Similarly women, when conditions are hard, shelter their physical weakness behind the complementary strength of men, but as life grows easier and safer for all, they become independent and, entering into competition with men, finally claim political equality with them. When women claim, as in advanced civilization they frequently do, to exercise a voice in the policy of the State, they do so because the equalizing action of civilization has brought the individual requirements of all its slaves down to their level. Life is so easy that they are not at a disadvantage when competing with men. There is only one further stage, which begins in the insubordination of the children. The objection which men have to giving women a voice in the management of the State is rooted in biological rather than in political experience, and is bound up with the fact that the male has to win and woo his mate from rivals. None knew this better than the women, when Deborah, quoting the mother of Sisera and her "wise ladies," takes it for granted that there was always "to every man a damsel or two" when victorious warriors "divided the prey." Man for long ages has been accustomed to see conquerors come into a desirable land, kill the men and take the women. On the one hand, the women found by barbarians when

overrunning a decayed civilization have so often overawed their new husbands by their superior knowledge of the arts of peace, that a tradition of the greater refinement of women has been left. On the other hand, the readiness that women have shown to become the brides of those who have killed their former husbands and children has made men regard them as possessions rather than members of the State. Women are so frequently transferred from man to man and tribe to tribe, by marriage, sale and capture, and their attitude towards life is so different from that of their husbands, that men are not sufficiently sure that they are identified with the State and interested in its continuity, to risk consulting them in matters concerning its safety.

Even in recent times civilized and cultured women have, after a heroic resistance while hope yet remained, shown the same acquiescence on occasions of national disaster. The gentle Euripides, whose writings provide so much ammunition for feminist orators, sadly admits this, and he had seen the women of his own race in the slave-market after an Athenian triumph over another Greek city. The lachrymose philosophy with which the "Trojan women" accept their fate makes this terrible play a document of the greatest anthropological interest.

In the literature of various races the subject is usually found to be one fraught with difficulty. On the one hand, we find Andromache, one of the noblest and most sympathetic of tragic figures, consoled for the loss of Hector and Astyanax by a renewal of happy married life with one of their Greek murderers. On the other, we find the Japanese lady, Tokiwa, surrendering to the murderer of her lord in order that he may spare the lives of her sons, who grew up to avenge their

father. We can observe the same throughout history. Great conquerors with constructive aims usually try to consolidate their conquests and assimilate the culture of their recently acquired possessions by marrying, and encouraging their followers to marry, the heiresses of their new dominions. Alexander favoured Persian princesses as the brides most expedient for his generals and himself. William the Conqueror chose wives for his Normans from the remnants of the Saxon aristocracy. Akbar's matrimonial supervision aimed at alliances between Rajput princesses and his Mohammedan followers. And so on. The principle is unchanged to-day. The parvenu looks to consolidate his position by a brilliant marriage, and the traditional reward which popular fiction bestows on the industrious apprentice is a partnership and marriage with his employer's daughter. The conquerors find the women complaisant, to the disgust of such of their men as survive to see the change; and so long as the men of a race retain their power they look upon women, not as their partners in the State, but as possessions to be guarded.

The conditions prevailing in the present stage of civilization are undoubtedly different from those of any preceding one. Civilization is now practically world wide, and its mastery of the whole human race is so complete that all are slaves to it alike. Only in tropical forests and Asiatic backwaters of civilization does personal-slavery persist, so that everywhere the victims of civilization boast that they are 'free.' The levelling process can hardly stop here, and just as all men have come into the system, all women wish to enter it on the same footing. But the unrest of women, of which we hear everywhere, from the streets of London to the harems of Constantinople, recalls unpleasant

symptoms in the decay of previous great civilizations. We can hardly observe that the women have got out of hand without recognizing a deterioration in the men, and fearing that attempts are being made to overbuild the structure of society upon a crumbling foundation.

It will be seen that the whole world to-day is in a condition which has often been observed before on a smaller scale within the limits of an old civilization. Society is built up upon the old tribal instinct. The community is competing against nature, and each of its members must show forbearance towards his neighbours, help those who need it, co-operate fairly with the rest for their common good, and evade no sacrifice or seize no advantage by which he profits to the detriment of others. In other words, the struggle for existence must be suppressed within the community in order that the community as a whole may compete successfully with external nature. When the tribe has been replaced by the great nation, the struggle for existence against nature without is carried on upon frontiers so distant from its centre that the need for suppressing the struggle for existence between its own members at home is lost sight of. This, together with the deterioration of the population which is bred in such security leads to disintegration through internal strife. A stage was recently reached in the history of the human species when conditions throughout the whole world were very like those in the heart of a great empire. Until the outbreak of the present war there was no enemy apparent against which men need combine, and there seemed no reason to curb individual selfishness.

In recent years it began to be suspected that the peace of the world could not be an enduring one. Efforts were made to fix the peace by contriving courts

of arbitration and binding nations in treaties not to break the peace. Rules for civilized warfare were drawn up so that if the breach of the peace could not be prevented by one treaty, the form the disturbance should take should be fixed by another. These arrangements overlooked two biological facts. Firstly, the law can only limit the struggle for existence within a community whose resources are sufficient for the needs of its members. Secondly, disputants can only be controlled by the presence of a sufficient number of people who are averse to letting them brawl. Of late the relation of the resources of the world to its human population has been such that the struggle for existence (existence in sufficient comfort to be thought worth while, for bankruptcy can rarely be put off until the bankrupt can offer nothing in the pound) had to begin again. The nations of the world in their different ways prepared for the struggle and now it has begun. Since almost all the Great Powers are involved, the world resembles a law court in which everyone is a litigant, and there are no judge, jury, or police to administer the law. The consequence is that treaties, being only observed by those whose interest it is to observe them, are disregarded, and the struggle is proceeding in accordance with the biological principle that self-preservation is the first consideration. There is, of course, nothing new in all this. The advertisement of cheap and painless substitutes for war has been a recurring feature in the cycles of civilization. In Greece of the fifth century B.C. there prevailed a belief that in treaties and arbitration had been found a panacea for international troubles. It showed a frame of mind which closely resembled the optimism of recent times, and suffered the same tragic disillusionment.

The outcome no one can foresee. The great question is whether this civilization will be regenerated or destroyed. There have been times when a civilization which appeared to be far gone in decay has been restored to temporary health by a struggle with external danger: individualistic strife has ceased, selfish politicians have combined to place their country above faction, the people have entrusted the organization of their resources unreservedly to the men they believed most able, and all have looked beyond their domestic fetishes to the God of their fathers. But this is not invariably the effect of external danger. If the rottenness of the structure has gone too far the touch from without only brings it down with a crash.

No one expects to see this civilization suddenly overwhelmed by a cataclysm. It will be not one war which will wear it out. The first effect of the increased tension may be to raise standards. Victory, bringing independence and mastery, will be to the nations with the greatest self-control and intelligence, and for a time we may see the irresponsibility of selfish cosmopolitanism replaced by patriotism. But even then it is difficult to see how the present civilization can continue. Civilization is so uniform. The speech of a well-known man delivered in London to-day is published in the newspapers of Valparaiso, Calcutta and Yokohama to-morrow; and opinions regarding it are exchanged between all three cities within the week. A man in each of these cities may have toothache and have the tooth stopped in practically the same way. Clothes worn by natives in Africa were grown in America and manufactured in Europe. Diseases are treated in China, and railways worked in South America, by men trained in the same university. Yet when one finds natives in the interior

of Africa and South America far from the nearest telegraph or railway using guns and sewing machines, enjoying gramophones and sparklets, boasting of Bibles in the vernacular, and parading ' up-to-date ' democratic catchwords, one cannot help seeing that all these things which have altered their lives have been exported to them from a few places in Europe and North America. A large proportion of the human race participates in a civilization which it has received ready-made and which only adds to its complexity and instability. Much that is characteristic of our civilization has grown solely out of the period of wealth and peace, and, like the population so rankly multiplied in that easy time, is little able to bear an increasing strain should the pressure of life rise. Already in art, science, and literature we see a weakness, an inclination to apply, adapt, and copy rather than to originate, a tendency to avoid rather than to overcome the difficulties of technique, and to hide uncertainty of mind behind obscurity of language whilst professing to believe that precision of ideas and clearness of exposition suggest want of depth.

Reflecting on the fate of previous civilizations, we may well wonder which, if any, of the achievements of our own will survive it. It is quite possible that at some future period, when another civilization is being built upon the ruins of the present, the arts of photography and flying may have to be reinvented, and the forces of steam and electricity rediscovered.

Painfully acquired knowledge is very liable to be lost even without the aid of a destructive visitation of ' Huns.'

Every year now sees the republication of facts or the restatement of theories by individuals who believe, in perfect good faith, that they are announcing new

discoveries. Indeed a medical teacher has said that young physicians would avoid repeating many old mistakes if only they acquainted themselves with the work already done by the ancients. The teacher who said this was Hippocrates, and he said it roughly two thousand four hundred years ago. He belonged to a former civilization, but we recognize the same conditions in our own.

When we reflect that our age is so overloaded by its accumulations of knowledge that even with a highly perfected system of co-ordination and indexing, and in the hands of men bred in its atmosphere and trained to its application, our wisdom is more than we can assimilate or use, we may well be doubtful how much could be brought to the surface again if its complex fabric were even for a moment submerged.

No one can say whether our decline is to extend through decades or centuries. It is even doubtful whether we have yet reached the full height we are destined to attain. But there seems no reason for claiming greater permanence for the present civilization, in spite of its world-wide achievements, than has been shown by any of the great civilizations of the past.

POSTSCRIPT

June 1916.

WE have become accustomed to hearing the events of the past twenty months described as "the greatest war in history," and to finding them regarded as of unique and overwhelming importance in determining the destiny of the human race. In a chapter dealing with the condition of man at the present day, the European War may seem to require more than passing mention. If I have touched upon it but lightly, it is not because I underrate its terrible importance to ourselves. But for the purposes of this book I can only discuss the war from two points of view. Is it an event unique in the history of mankind? Will it produce results unprecedented in the experience of the human race? Personally I cannot make any other reply to either of these questions than that I do not know.

Is this "the greatest war in history," as many people seem to take for granted? I do not see how we can judge except by results. We usually expect results to be proportionate to the forces at work, to the duration of the period through which they are acting, and to the area over which their influence is exerted. If we take a former war as a standard of comparison, we shall see the difficulty of attempting to estimate the changes which are likely to result from the present struggle. At the beginning of the thirteenth century

the Mongols, moved like certain nations of to-day by an irresistible need for expansion, started upon a career of devastation under the leadership of Jenghis Khan. One of the cities they took was Kaifong in China. This city, which stood a siege of twelve months, was defended by walls thirty-six miles in circumference, and its population was estimated at seven millions. At the other end of Asia, Herat was taken by storm after a siege of six months, and in the course of a week 1,600,000 people were massacred within the walls. Mohammed, the Shah of Khwarizm, led an army of 400,000 men against one of the two armies which Jenghis Khan sent simultaneously against his empire. He was defeated and left 160,000 dead on the field. These random specimens are big figures even according to present-day standards. Jenghis once said, " My country is a magazine of warriors " ; and it must needs have been, for Mongol armies were fighting and conquering on a grand scale from Poland to the eastern limits of China through a period of more than half a century. The fury of Mongols to some extent spent itself under the leadership of Jenghis Khan and his successors, Oghatai and Kublai Khan. But even then Asia and Eastern Europe had no peace until after Timur had done his worst. So that the Mongol upheaval may be said to have started a period of war, in which large forces were engaged, over the whole of Asia and part of Europe for nearly two centuries. Among its results were the foundation of the Yuen dynasty in China and more remotely of the Mogul dynasty in India, the overthrow of the Eastern Caliphate, the devastation of Russia, and indirectly the fall of the Byzantine Empire, since the Turks being driven westward came to found eventually the Turkish empire in Europe.

How far do the sequence of cause and effect in this instance help us to estimate the magnitude of present happenings and to anticipate their results? To take the question of numbers first, it may be objected that in Asiatic wars figures are unreliable. This may be true. But though we know that the armies engaged in the present war are very great, neither the numbers in the field nor the extent of the casualties are known accurately, and they are in some quarters not only deliberately concealed but falsified by those who could speak with authority. It is too early to discuss the question of time. This war may be destined to last for fifty years, but it has not lasted for three years yet. We have not, so far as I know, any grounds for saying that the European armies can do as much damage in two years as the Tartars in fifty, or even in five. While as to area, apart from the German colonies, the areas made desolate by the fighting in Belgium, France, Poland and Servia cannot compare either in population or extent with those ravaged by the Mongols in China alone. Though the results of the Mongol upheaval may be trifling compared with those to whose threshold the present war has brought us, we cannot judge yet what is in store for us sufficiently to be quite sure that this will prove to be the case. We hear much of imminent changes, social, economic, dynastic and political, but so far they have not been accomplished, and in the present confusion we cannot distinguish durable innovations from emergency measures. The only dynastic change effected as yet has been the substitution of a Sultan for the Khedive of Egypt. And though we express pious hopes that this time the Turks will be compelled to migrate out of Europe, they are not on the way at the time of writing.

This may be "the greatest war in history." It seems very probable that such large armies have never been engaged nor such extensive destruction of life and property achieved within the space of two years before. But surely grandiose comparisons are premature. Our sufferings are sufficient, and are not to be alleviated by calling them "the most terrible the world has ever seen."

It would be interesting to know what historians will be thinking two hundred years hence; but I do not see how anyone to-day can anticipate their judgment. We do not expect this war to last more than another year or two; and we hope it may be ended even sooner. We look, moreover, for a decision which will render the Teutonic Powers innocuous for a long time to come. But the forces were accumulating and tension growing throughout the world for some time before the storm burst, and it is most unlikely that the readjustment will be completed and an equilibrium reached at the moment when hostilities cease. It is not possible for us to say whether the war is an episode disturbing the even course of events, or the first step to a new state of things, or a restoration of older conditions of existence more like those which prevailed before the discovery of America.

CONCLUSION

IN the preceding pages an attempt has been made to trace the history of man. In such an attempt it is perhaps inevitable that disproportionate attention should be given to the most recent times in which we ourselves live, since they are the times of which we know most, and with which we are most concerned. Yet it is surely a mistake to regard all that has happened during more than two hundred thousand years as of less importance than the events of the last two thousand or even ten thousand years. A brief résumé may make this more apparent.

Out of the ground-living or human group of animals which diverged from the arboreal or anthropoid apes, two species ultimately survived the rest. These were two species of man, the Neanderthal and the so-called 'modern' species. Both had brains as large as the average European of to-day and larger than some modern savage races. Both were 'human' in their ways of living.

After long ages the more massive Neanderthal species became extinct: why, we do not know.

Advancing along parallel lines the 'modern' species evolved several races. Some of these have survived to the present day; others, inferior in no way that we can discover, have died out: why, we do not know.

Even before the last ice age, when the Neanderthal species was still living side by side with the 'modern'

species, the products of human ingenuity witnessed to intelligence, artistic taste, and manual dexterity in no way inferior to those of modern races. Certain races developed a high culture, though owing to the different needs of the conditions under which they lived they evolved nothing like the civilization of to-day. These races disappeared, leaving no descendants; and their culture was lost, not handed on, only to be rediscovered after the passage of anything from fifty to a hundred thousand years. Once more, why they vanished and their culture was lost we do not know.

After the last ice age other races, which cannot as yet be traced back to their origins, multiplied till they filled the habitable world. These survivors evolved a new culture different from that of the races just mentioned. After tens of thousands of years these races comparatively suddenly produced civilization. Civilization arose from the interaction of different types of men reacting on one another in dense numbers on land which was inadequate to support them unless they were highly organized to develop its resources by works of broad design carried out on a large scale.

This new mode of life began amongst the human population in several localities around the world roughly ten to twelve thousand years ago. During the time which has since elapsed a succession of systems, civilizations, have arisen, matured, declined and been destroyed. But though individually they have fallen the mode of life has spread, and many of the achievements of dead civilizations have survived them to enrich their successors.

The system of life, civilization, has been spread, largely through the great breeding grounds of the world pouring out a succession of swarms, with fresh vitality,

to restart civilizations, on wider and wider bases, as their builders degenerated in the conditions which their labours produced.

For several thousand years the rise and fall of civilizations was local, and man, whilst increasing the supporting capacity of the land he occupied, nevertheless grew against pressure. All this while the struggle for existence went on, men being organized for mutual support, so that the units were large communities, nations, not individuals.

Within the last thousand years the Old-World civilizations opened up the remaining continents of the globe, and the additional space and wealth thus acquired, relieved the pressure of life and relaxed the struggle for existence. In the period of peace and plenty which followed, the methods of dealing with the material resources of the world were vastly improved, and civilization throughout the world became comparatively uniform and continuous.

At last the population of the world, with a very high standard of living, is catching up with the resources of the globe, and the resumption of the struggle for existence is inevitable. At the same time the whole character of the population is greatly deteriorated through the unweeded multiplication of even the most defective stock. The world-wide civilization of to-day shows all those signs of decay which have heralded the decline of great local civilizations in the past. Meanwhile the chief breeding grounds of the world are becoming exhausted owing to periodic emigrations of their most vigorous stock through many centuries; and are further deteriorated by the introduction of the very conditions of civilization which the nomadic and pastoral peoples they have sent out have found

fatal to their vitality elsewhere. Whether the present civilization will decay and break up, and out of the ruins new civilizations will arise in localities where conditions produce new stocks with fresh vitality, or whether the civilization of the last ten thousand years is only an episode in human history inherently evanescent and now passing away, is a problem upon which it is vain to speculate.

The ultimate extinction of man is, of course, as inevitable as was that of the innumerable species with whose remains the geological strata are packed; but this again is a subject about which it is profitless to speculate.

During his long occupancy of the earth, man has experienced and survived great changes in the earth's surface and climate. A great ice age has come and gone, leaving him, thanks to his versatility, hardly changed. He has seen types of animals become extinct and new forms arise. He has adapted himself, not by physical modification but by mental versatility and manual dexterity, to the reshaping of continents. But the mushroom growth of civilization has been exposed to no trials of a magnitude in any way corresponding to those through which man as a species has managed to endure. Who dare say that this brief phase may not pass and man remain after civilization has gone? Civilization may not even last until a slow geological catastrophe submerges it. Man is himself altering the surface of the globe with great rapidity. He seems bent on making a clean sweep of all the larger animals, his mining and industrial activities are beginning to affect chemistry over wide areas of the earth, and his reckless destruction of forests is so disturbing the rainfall that deserts are appearing which spread like

rodent ulcers as the dust raised from them by the wind chokes the surrounding vegetation. Appreciable interference with the course of nature one can see, but the ultimate effect none can foretell.

And on this note we must close with what content we may: a note not of pessimism but of agnosticism. We know little of man's origin. He comes out of dim mists of uncertainty. The whole course of his existence up to to-day presents a long series of problems before which we stand baffled. And of his final destiny we dare not even guess.

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